

DOCUMENT DATA FORM

Your Name: Nick Carino

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Drawing Book 8 Chapter 5: Various details -
Slurry wall - drawings 8-JK5-1 to 8-JK5-23

Include work order no. and floor no. if applicable

Roll # DB03

Doc. ID (report #, dwg. #):

Document Date:

1968-71

Document Author Name:

Author Organization:

SHC&R

KEYWORDS - HIGHLIGHT ALL THAT APPLY -

Level 1

Bankers Trust	Project 4	WTC 1 - North Tower	<u>Add</u>
Below Grade	Project 5	WTC 2 - South Tower	
Concourse	Project 6	WTC 3 - Marriot Hotel	
Electrical Substation	Project 7	WTC 4 - South Plaza Bldg.	
Liberty Plaza	Project 8	WTC 5 - North Plaza Bldg	
PATH Station	WFC 1 - Oppenhiemer Dow	WTC 6 - Customs House	
PATH Terminal	WFC 2 - Tower B	WTC 7	
Project 1	WFC 3 - American Express	<u>WTC Complex</u>	
Project 2	WFC 4 - Tower D	WTC Plaza	
Project 3			

Level 2

Accident analysis & risk	Fire protection	Misc. Performance Problems	<u>Structural</u>
Architectural	Fire service	News coverage	Tenant alterations
Data request	Landscaping	Police	Tenant Space
Emergency management	Management	Security	<u>Add</u>
Evacuation	Mech./elec.		

Level 3

1993 explosion	Cranes	Frame	Roof	Weight
A/E fitout	Criteria	Frame analysis	Safety	Weld detail
A-242	Dampers	Frequency	Schedule	Weld size
A-36	Debris	Fuel	Sculpture	Welding
A-497	Deck	Furniture layout	Security system	Wind
Aircraft impact	Deflection	Generators	Shear knuckle	Windows
Air cooled condensers	Demolition	Guidelines	Shear test	Yield strength
Analysis	Design	Gypsum board	Shear Stud	<u>Add</u>
Angles	<u>Detailing</u>	Hat truss	Shop drawings	<u>Drawing books</u>
Antenna	Doors	Human comfort	Shortening	
Artifacts	Drawings	HVAC	Slab	
Asbestos	Eastern States Steel	Index	<u>Slurry wall</u>	
Base plate	Egress	Inspection	Smoke control	
<u>Beams</u>	Elevator	Insulation	Smoke test	
Bid documents	Elevator Shaft	Job number	Spandrel beam	
Bid Invitation	Emergency	Joist	Specifications	
Bow tie	communications	L-50	Splices	
Bracing	Equipment	Lighting	Sprinkler	
Bridging truss	Erection marks	Loads	Stability	
Building code	Errors & Omissions	Maintenance	Stairways	
Calculations	Escalator	Marking	Standards	
Carpet	Expansion joint	Mesh reinforcement	Steel	
Ceilings	Exterior columns	Mill inspection	Steel composition	
Certification	Fabrication	Model	Stiffness	
Chillers	Family member	Mullion	Structural review	
Cladding	Field survey	Operations	Surveillance	
Collapse	Fire alarms	Paint	Survey	
Columns	Fireproofing	Partition layout	Survivor	
Communication systems	Fire spread	Partitions	Tenant list	
Composite truss	Fire testing	Photos	Tenant occupancy	
Computer output	Firetower	Pipes	Testing	
Computer program	Flag Pole	Plumbing	Tie	
Concrete	Flammability	Prestressing	Tolerances	
Connections	Floor	Probability, uncertainty	Transfer Girders	
Construction	Floor load	Quality control	Triad	
Contract	Floor slab	Ramp	Truss	
Core beams	Floor system	Reinforcing	Vestibule	
Core columns	Floor trusses	(strengthening)	Vibration	
Corrosion	Formwork	Renovation	Walls	
Cracking	Foundations	Repair	Water supply	
	Fracture	Research & Development	Weather	

WTCI-1067-LERA

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE TYPICAL DETAILS SLABS & BEAMS - INDEX

DATE 9/ 1/70

REVISIONS

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8-JK5- 1.1

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PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE TYPICAL DETAILS SLABS & BEAMS - INDEX

DATE 9/ 1/70

REVISIONS

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8-JK5- 1.2

1067-2

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PROJECT *THE WORLD TRADE CENTER*

TITLE TYPICAL DETAIL OF SLAB AT SLURRY WALL

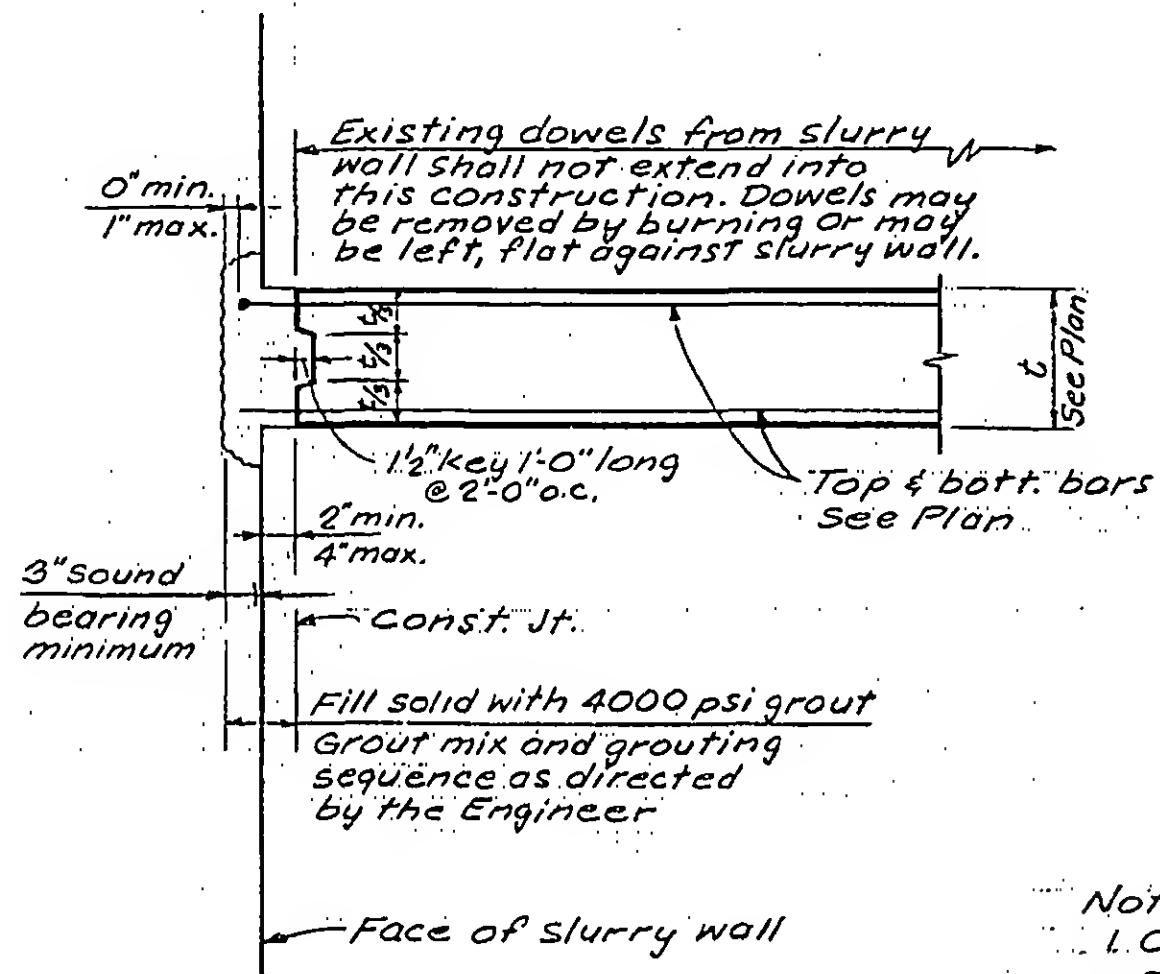
DATE 5-1-68

REVISIONS

2-6-69

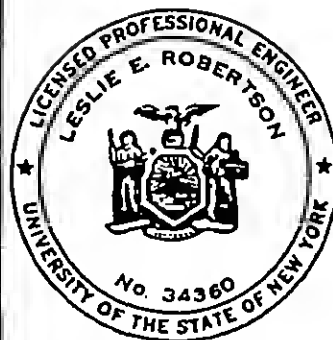
4-2-69

4-9-69



Notes:

1. Contractor shall deepen existing keys as required to obtain full bearing to the depth indicated in the drawings.
2. If required to obtain indicated bearing, keys shall be extended behind existing reinforcing steel within the slurry wall.
3. Contractor shall clean all loose or fractured material from within the key to expose sound concrete.
4. For slab at El. 253', see detail on 8-JK5-2.1



DESIGNED

DRAWN
S.C.

REVIEWED ..
E.L. ALER.

8-JK5-2

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

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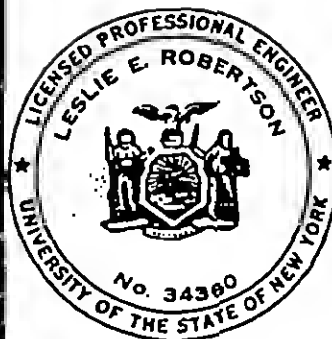
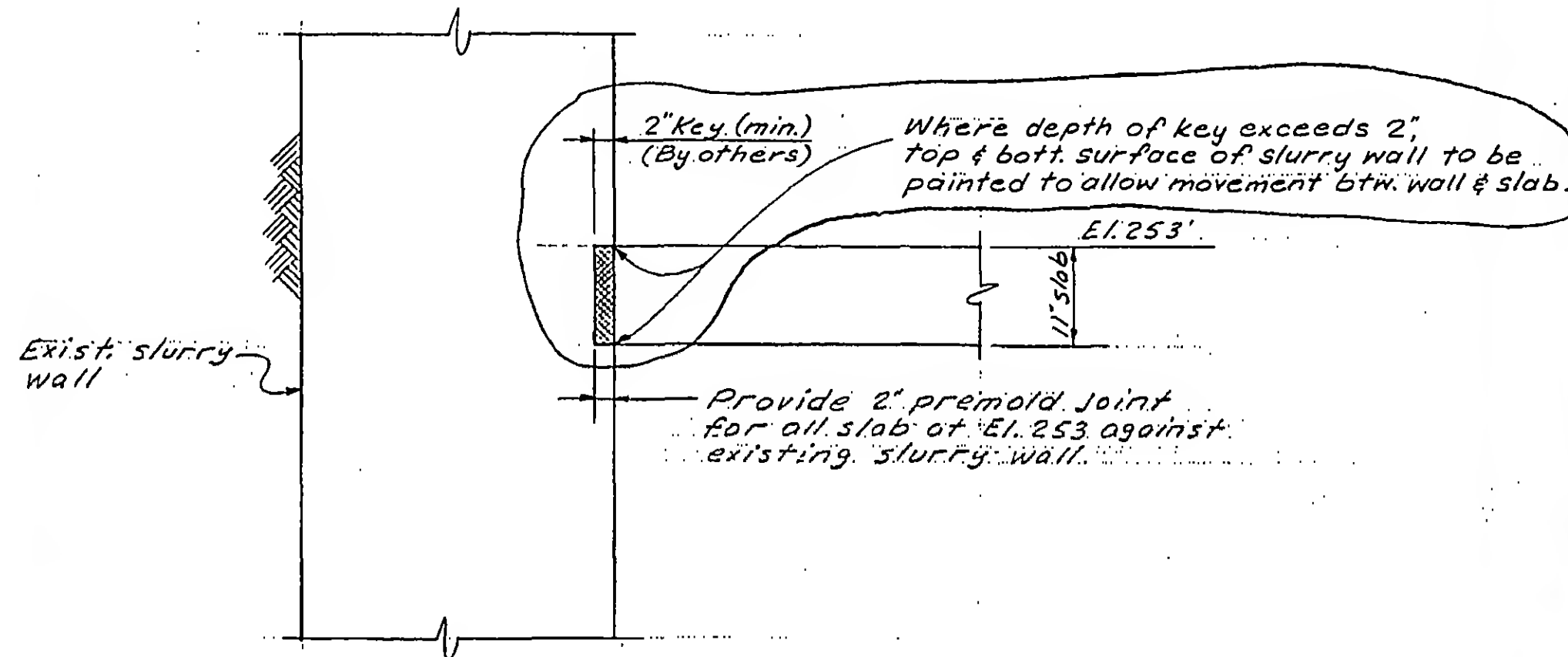
PROJECT THE WORLD TRADE CENTER

TITLE TYPICAL DETAIL OF EL. 253 SLAB AT SLURRY WALL

DATE 2-6-69

REVISIONS

2-13-69



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8-JKS-2.1

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PROJECT

THE WORLD TRADE CENTER

TITLE

TYPICAL DET. OF CONCRETE BEAM AT SLURRY WALL

DATE

3-28-69

REVISIONS

Existing
slurry wall

Form 6" key in exist. wall

2-7" ϕ x 4'-0" dowels
with threaded ends
(3" from eo. face
of beam)

Top bars

Slab thickness
(See Plan)2-3 unit threaded
ring wedge Cinch
Anchors (type 2) $D/2$ $D/2$

Beam depth = D

Square cut
reqd.

Bott. bars

Concrete beam
(see Schedule)

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E.L.

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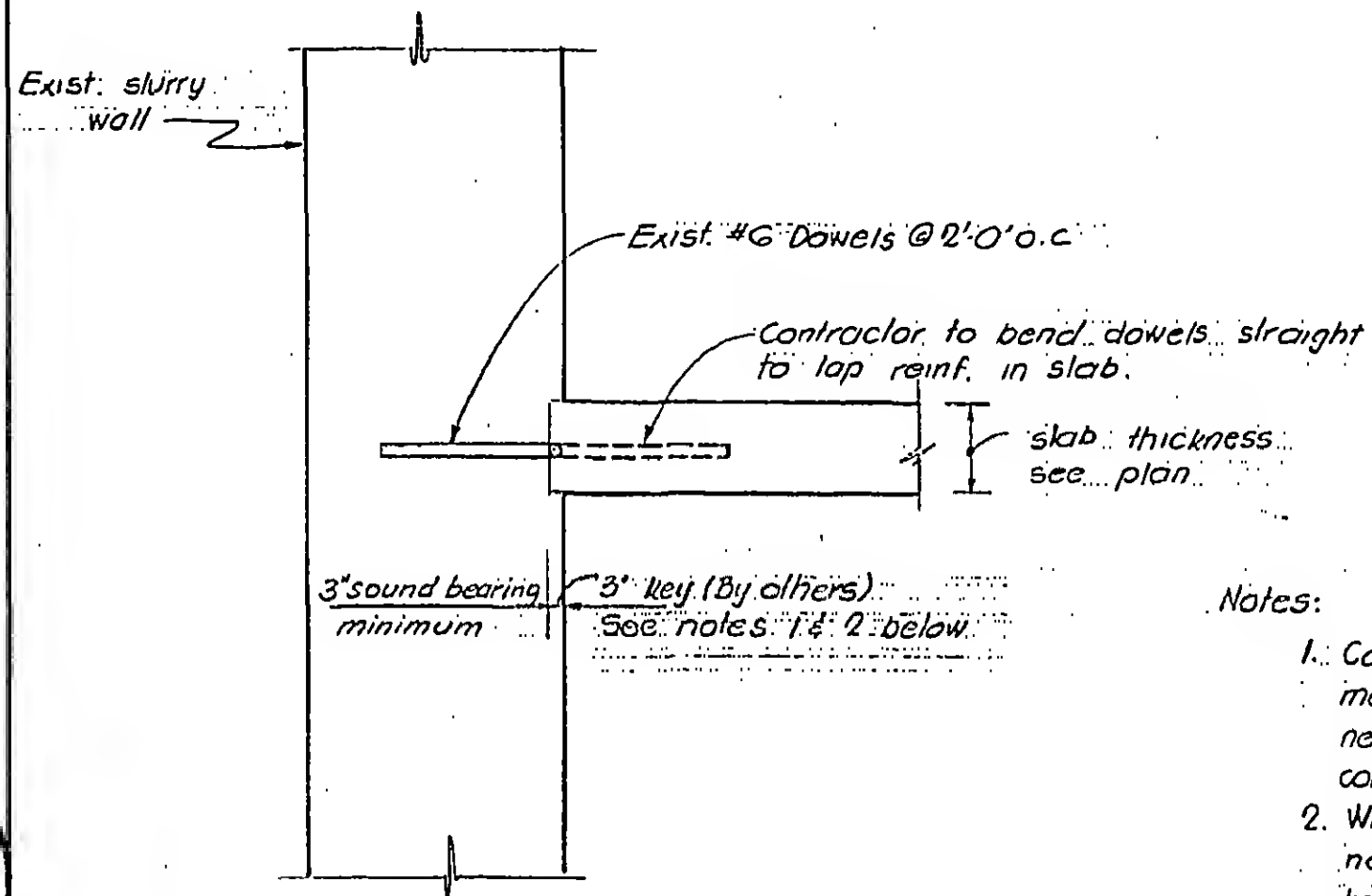
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PROJECT THE WORLD TRADE CENTER

TITLE TYPICAL DETAIL OF SLAB AT SLURRY WALL

DATE 4-9-69

REVISIONS



Notes:

1. Contractor to clean & chip-off all loose materials from keys provided by others where necessary; to further cut the keys to sound concrete.
2. Where keys are not provided or could not be found, contractor to cut new keys to the size as shown to sound concrete then install 3 unit threaded cinch anchors (type 2) @ 2'-0" o.c. with 3/4" ϕ x 3'-6" Dowels (A-432)

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E.L.

8-JK5-2.3

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PROJECT THE WORLD TRADE CENTER

TITLE TYP. CONSTRUCTION JOINT BTW. SLAB & SLURRY WALL

DATE 4-29-69

REVISIONS

5-26-69

3-2-70

4-24-70

Provide 2" ϕ weep holes, one in front of each perimeter wall joint (see PNYA dwgs for location of perimeter wall joint)

1 1/2" key 1'-0" long
@ 2'-0" o.c.

Not less than 3"
sound bearing.
Where req'd, cut
between and
behind existing
reinforcing

2" min.
4" max.

0" min.
1" max.

Existing dowels from slurry wall shall
not extend into this construction.
Dowels shall be bent parallel to face of wall.

Add 2-#7 cont. T & B.
(min. lap = 40 diam.)

#4 2'-6" @ 12"

For detail of support
see B-JK5-2.7

Const. Jt.

Fill solid with 4000 psi grout
Grout mix and grouting
sequence as directed
by the Engineer.

Face of slurry wall



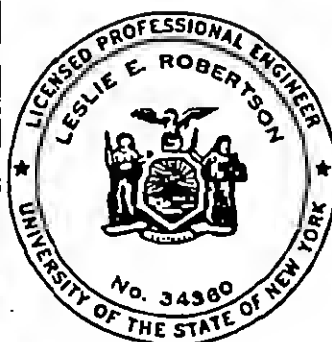
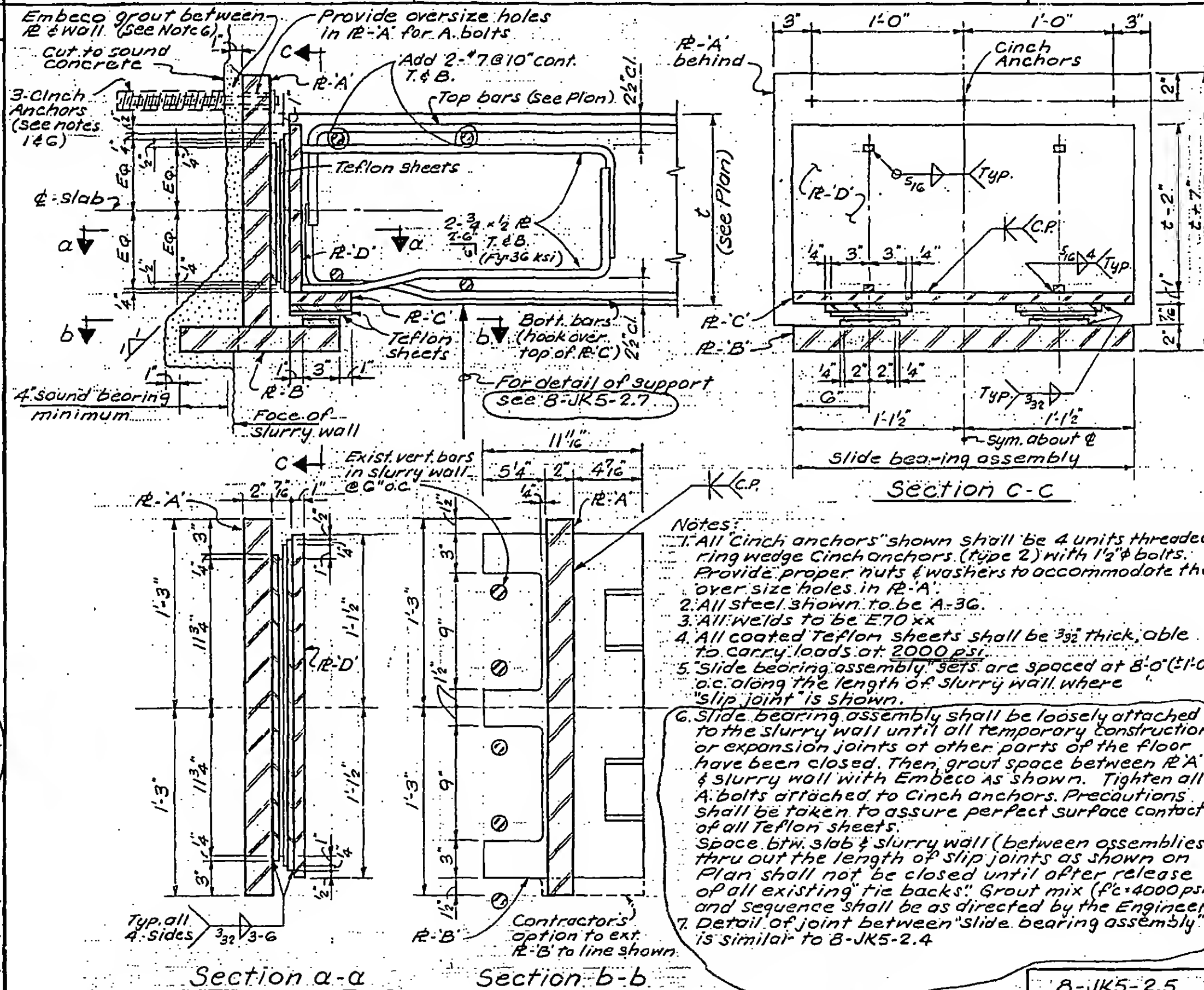
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E.L.

8-JK5-2.4

REVISIONS

5-26-69



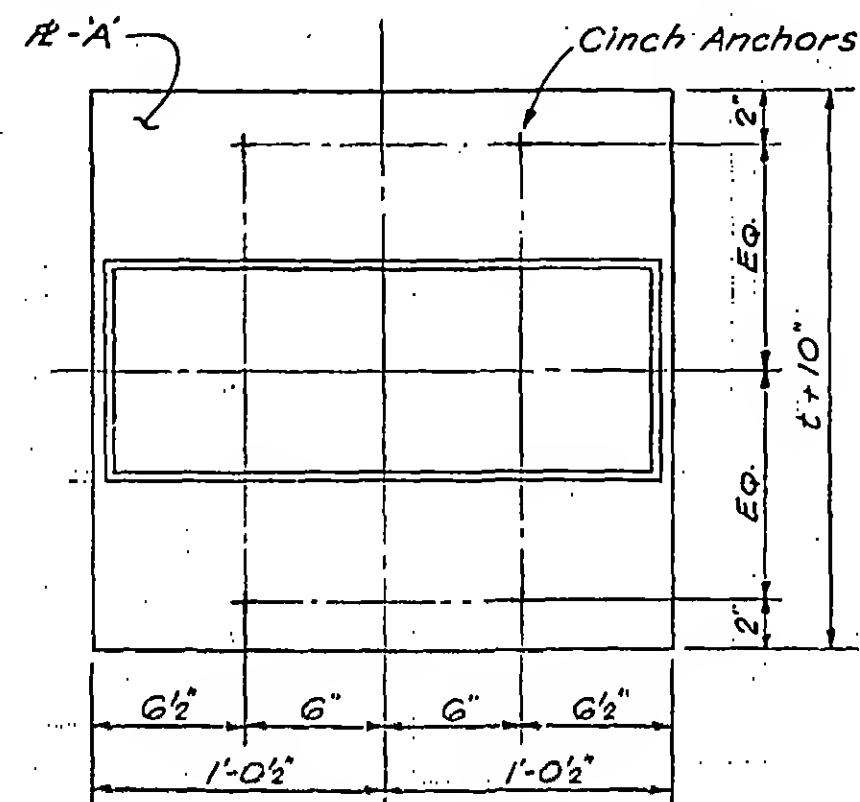
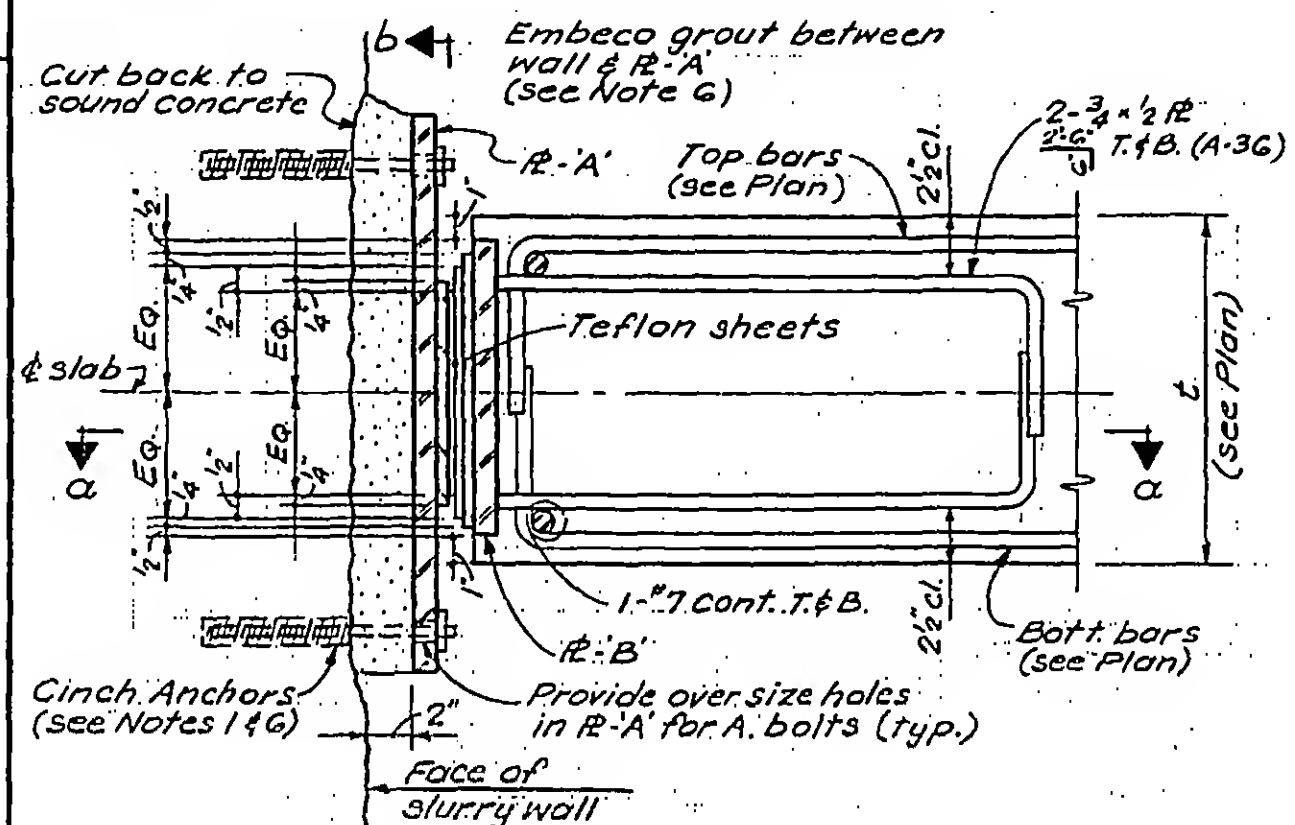
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S.C.

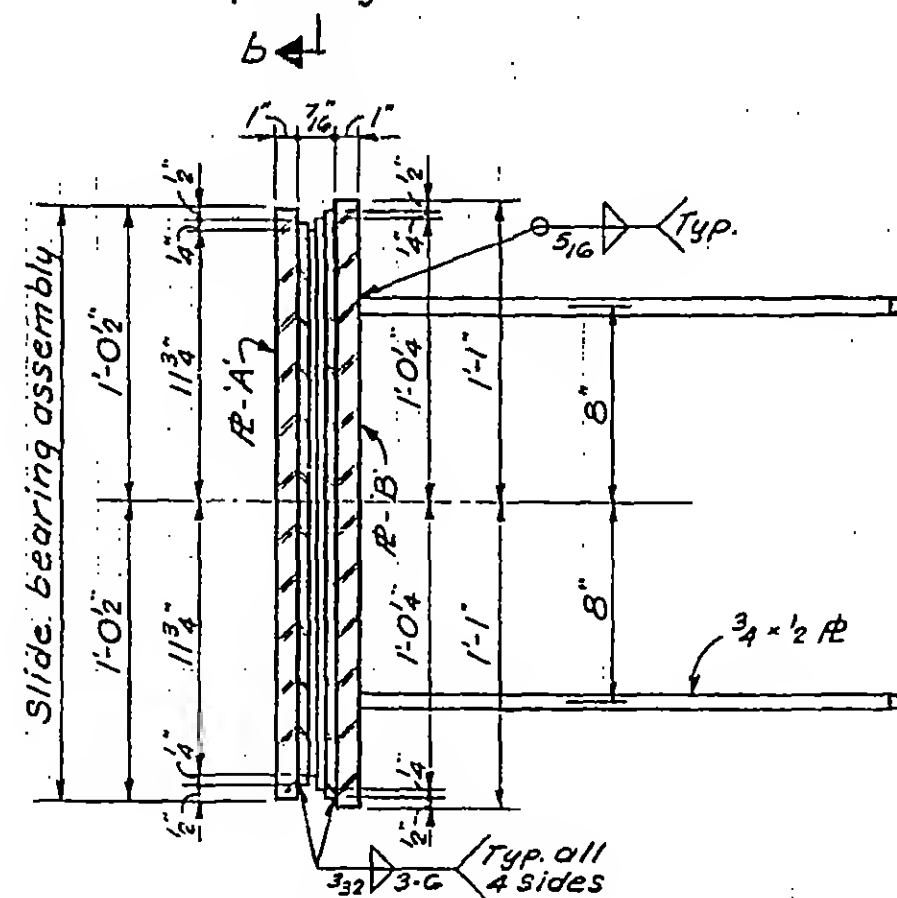
REVIEWED
: E.L.

8-JK5-2.5

REVISIONS



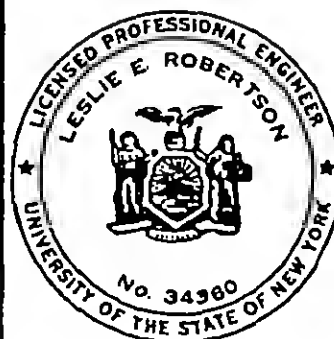
Section b-b



Section a-a

Notes:

1. All "Cinch anchors" shown shall be 3 units threaded ring wedge Cinch anchors (type 2) with 3/4" bolts. Provide proper nuts & washers to accommodate the over size holes in R-A.
2. thru 7. See 8-JK5-2.5



ORDERED

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S.C.

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8-JK5-2.6

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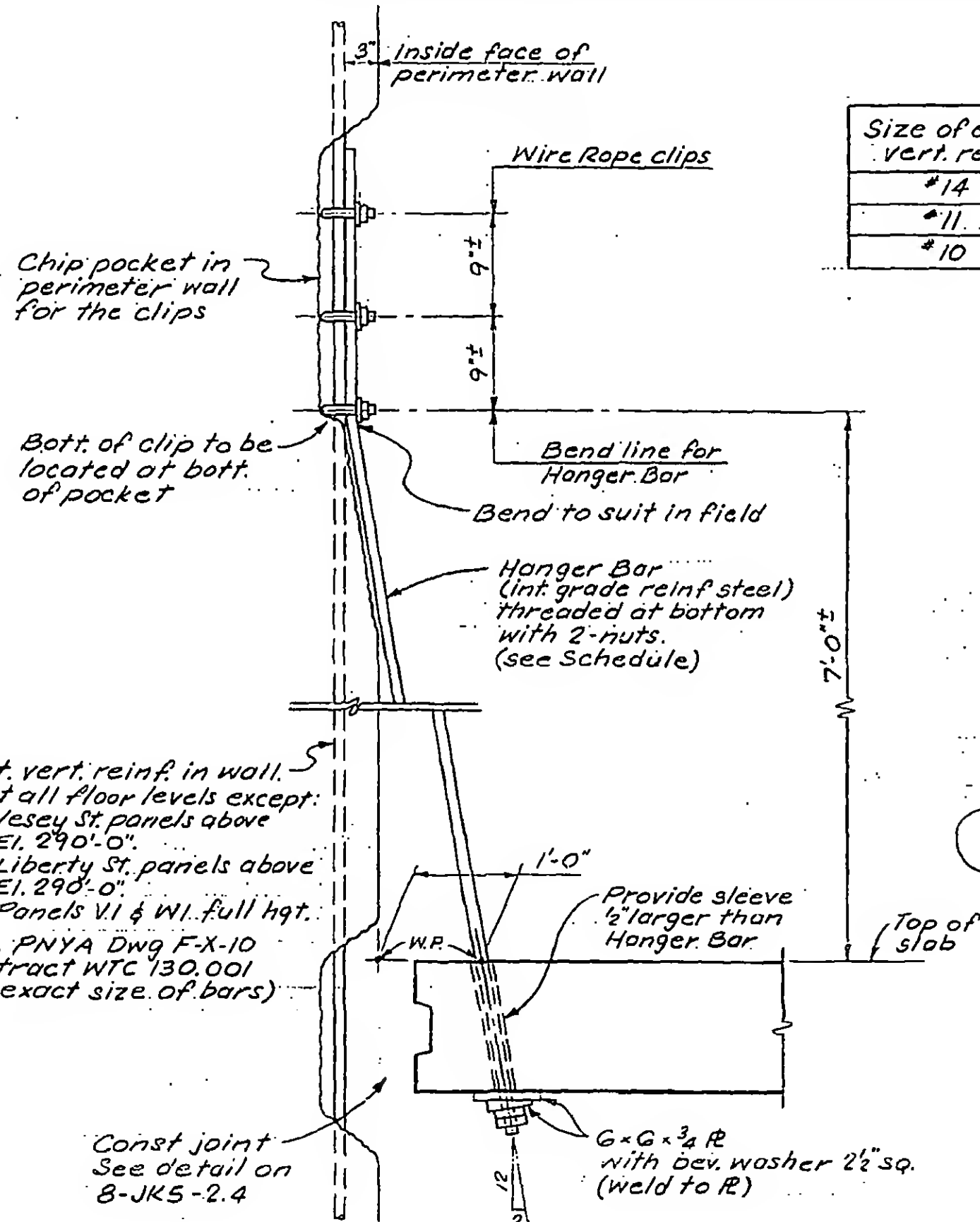
PROJECT THE WORLD TRADE CENTER

TITLE DETAIL OF FLOOR SUPPORT AT PERIMETER WALL

DATE 5-26-69

REVISIONS

7-22-69

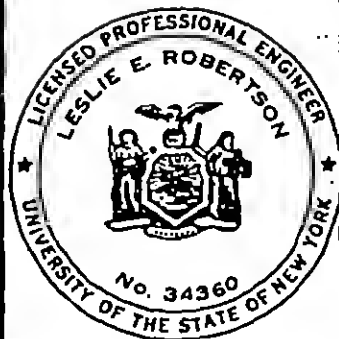


Size of exist vert. reinf.	Hanger Bar			Wire Rope Clip
	size	thread	spacing	
#14	#14	1 5/8"	10'-0"	1 3/4"
#11	#11	1 3/8"	7'-0"	1 1/2"
#10	#10	1 1/4"	6'-0"	1 3/8"

Notes:

1. All hanger bars are designed to carry the floor it supports. Any shores supported on this slab is strictly prohibited, unless additional shores are provided at each successive floor below, and supported on solid ground.

2. Contractor's option to use detail shown on 8-JK5-2.8



DESIGNED

DRAWN
S.C.REVIEWED
E.L.

8-JK5-2.7

PROJECT

THE WORLD TRADE CENTER

TITLE

ALTERNATE DET. OF FLOOR SUPPORT AT PERIMETER WALL

DATE

7-22-69

REVISIONS

3-2-70

4-24-70

Provide 2" ϕ weep holes, one in front of each perimeter wall joint (see PNVA dwgs. for location of perimeter wall joint)

Fill solid with 4000 psi grout. Grout mix and grouting sequence as directed by the engineer

Add 4-#5 ϕ bars spaced @ 3' o.c.

Where these clearances cannot be maintained, move SI to a new location

Top of slab elev. See Plans

SI10 - (A-36 Steel)
5'-0" long
spaced @ 3'-0" o.c.

Detail btm. steel beams same as 8-JKS-2

3/4" min.
1/2" max.

SI

1/2

1/2

const. joint

Where conc. seat occurs stop bar short of slurry wall

Square cut exist. slurry wall to this level and form conc. seat (6" 4000) as shown to receive Teflon pads

Face of slurry wall

2-#4 \square (around exist. bars as shown)

Exist. reinf. in slurry wall (see PNVA DWG. F-X-10 for spacing)

#4

Governed by dist. of exist. reinf. in slurry wall

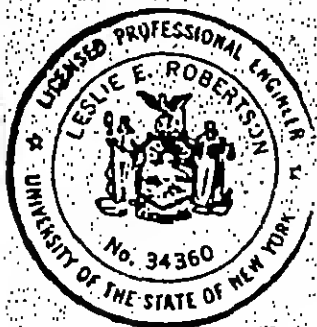
Section a-a

Coated Teflon sheet on 10 ga. R
Upper - 5" x 3" x 3/32"
Lower - 4" x 2 1/4" x 3/32" w/ 1/4" shear stud

NOTES

1. Detail between steel beams to be same as that shown on 8-JKS-2
2. Detail shown is designed to carry the floor it supports. Any shoring supported on this slab is strictly prohibited, unless additional shores are provided at each successive floor below and supported on solid ground.

8-JKS-2.8



DESIGNED

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J. Adams

REVIEWED

E.L.

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TITLE SUPPORT DETAIL AT 264 4274 BTW. TYPE-A SLIDE ASSEMBLY

DATE 6-17-70

Face of anchor

1 1/8" ϕ 12" in
4-unit threaded
ring wedge Cinch
Anchors @
1-9" O.C.

2' 2" Min. Min.

Face of sound concrete

Face of concrete

8-JK5-2.11

4' Min.

6" Min.

#4 @ 10

1'-0" Min.

Face of sound concrete

Roughen joint

8" Min.

6" Min.

3-#6 continuous

#5 cont.

3/4" ϕ 8" in
3-unit thread
ring wedge
Cinch Anchors
@ 2-6" O.C.

2' 4" Min. Min.

1'-0" Min.

1-1/2" Min.

2'-8" Max.

Steel formwork is
Contractor's option

Square cut

Bwt. slide assembly

Cut all protruding reinf.

El. 274 or
El. 264

Bearing assembly type "C"
See Det. on 8-JK5-2.11

f'c 4000 flowable
grout (1)

2'-3"

4'-0"

24"

7 3/4"

6"

5"

Contractor's option

Cont't water stop

#4 @ 6

6(cont.)

Note:

1. Grouting may not be until all been re.
2. See 8-JK5 at Type B

Note:

1. Grouting of this joint may not be accomplished until all "tie-backs" have been released.

2. See 8-JK5-2.10 for detail of Type 'b' slide assembly.

DESIGNED
ET/

DRAWN
J. H.

REVIEWED
LER.

SECTION A-A

8-JK 5-2.9

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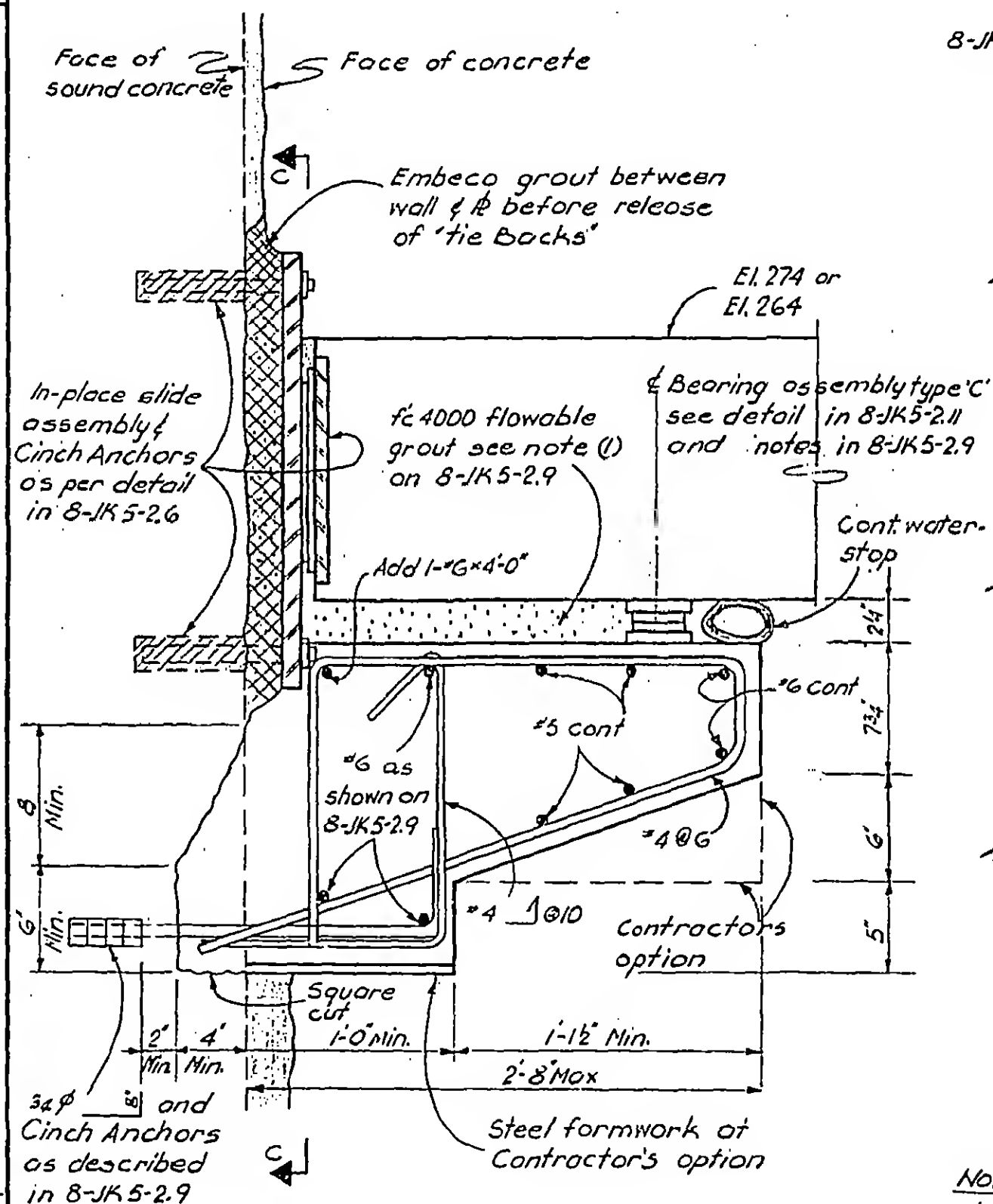
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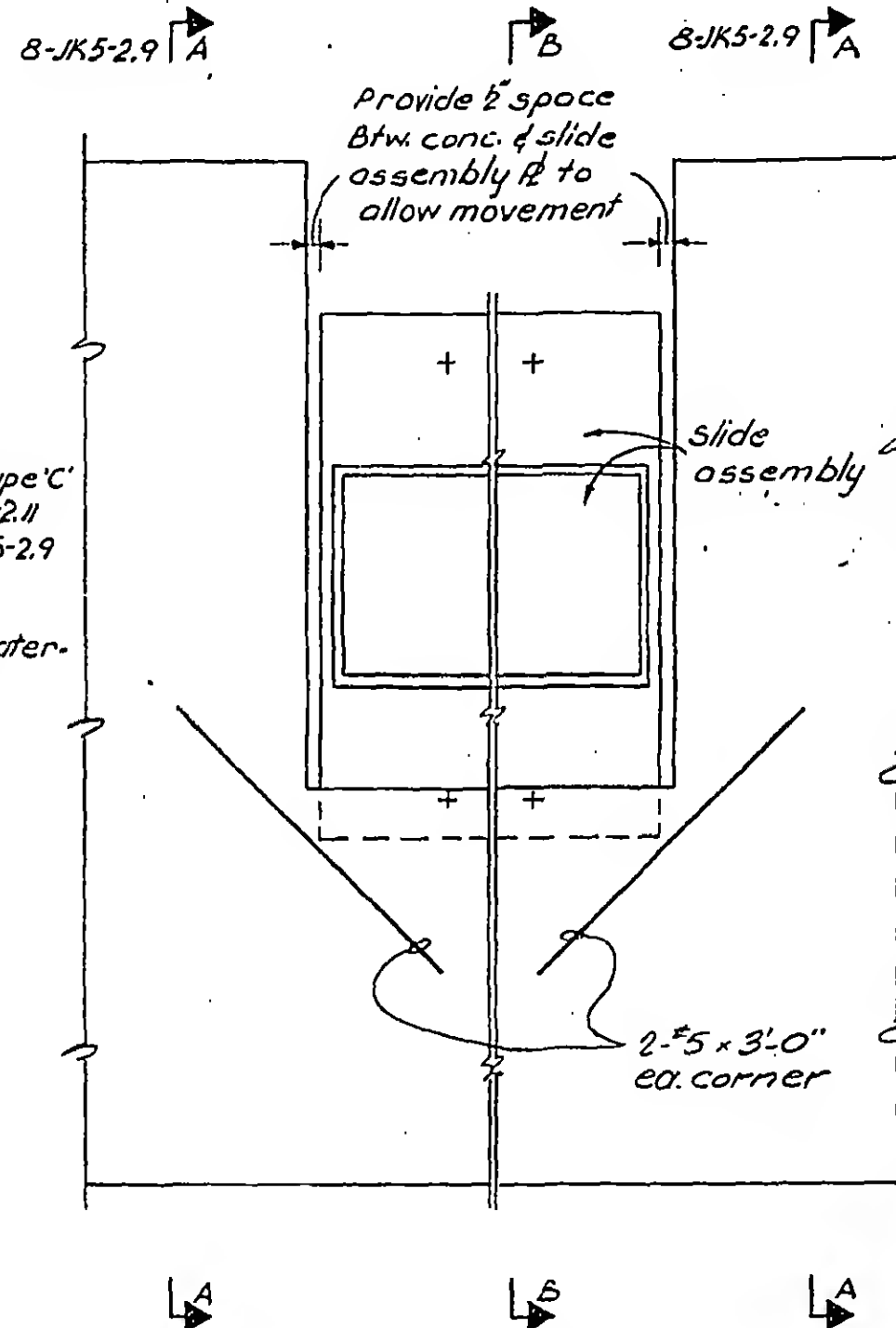
TITLE SUPPORT DETAIL AT EL. 264 & 274 AT TYPE A SLIDE ASSEMBLY

DATE 6-17-70

REVISIONS



Section B-B



Section C-C

Notes:

1. See 8-JK5-2.9 for detail between slide assembly.



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E.L.

DRAWN

D. Huggins

REVIEWED

LER

8-JK5-2.10

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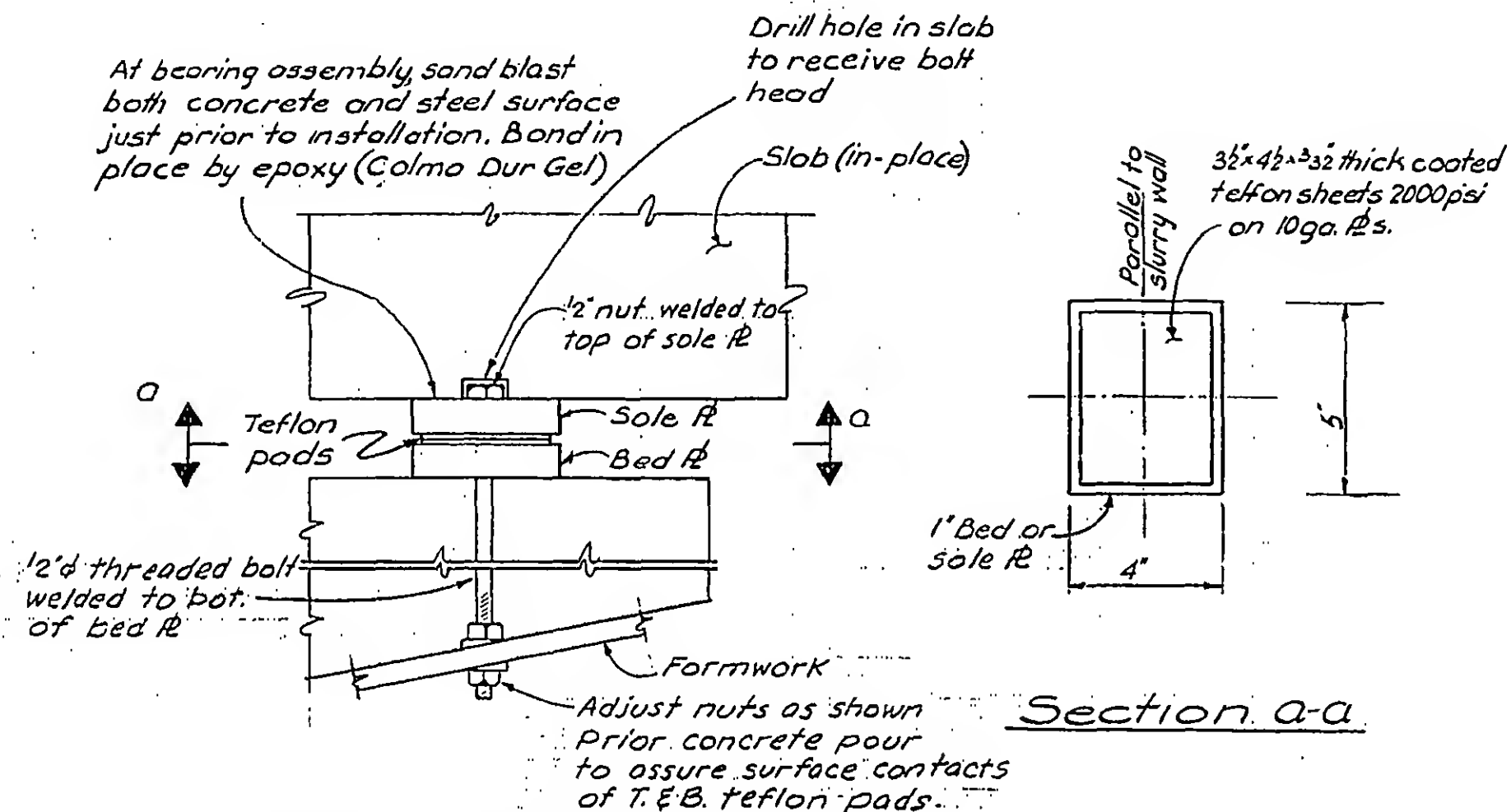
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PROJECT THE WORLD TRADE CENTER

TITLE DETAIL OF TYPE 'C' BEARING ASSEMBLY AT E1.264.4274

DATE 6-17-70

REVISIONS

7-11-70
General Rev.Should be
8-11-70Detail of Bearing Assembly

(Spacing of Assembly = 4'-0" o.c. Max)



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ETL

DRAWN

D. Huggins

REVIEWED

LER

8-JK 5-2.11

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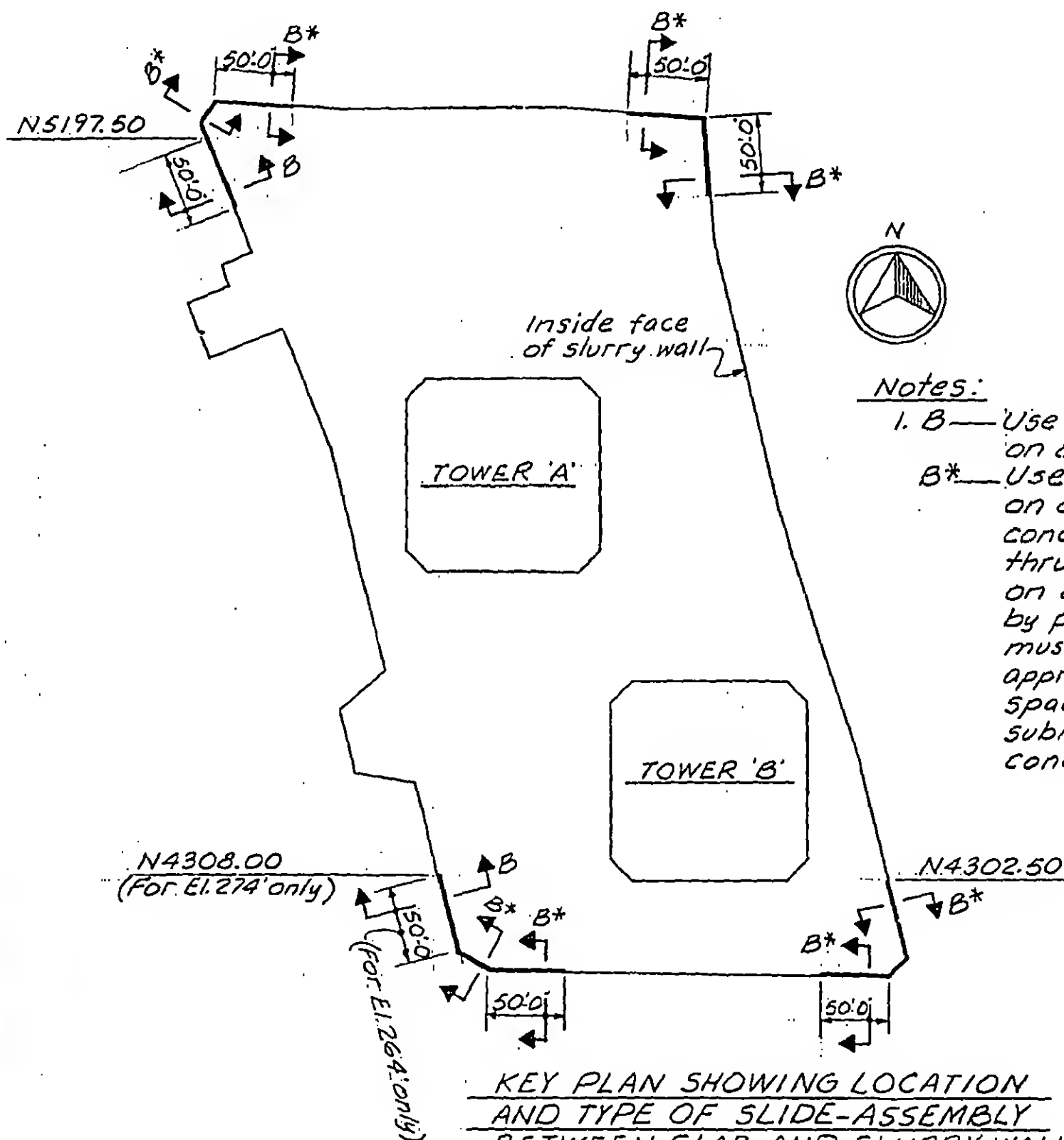
TITLE KEY PLAN- SLIDE ASSEMBLY AT EL. 264' & EL. 274'

DATE 12-11-70

REVISIONS

(PER PNYA LETTER 7-21-70)

6.



Notes:

1. B—Use slide assembly per detail shown on 8-JK5-2.6.

B*—Use slide assembly per detail shown on 8-JKS-2.6 in conjunction with concrete haunches shown on 8-JKS-2.9 thru 2.11. Steel beam supts as shown on 8-JKS-2.8 may be substituted by proper shorings and these shorings must be carried down to solid ground approved by the Engineers. Size and spacing of these shorings must be submitted for approval prior any concreting work.

KEY PLAN SHOWING LOCATION
AND TYPE OF SLIDE-ASSEMBLY
BETWEEN SLAB AND SLURRY WALL
AT EL. 264' & EL. 274'.



DESIGNED

DRAWN
A. FRANQUI

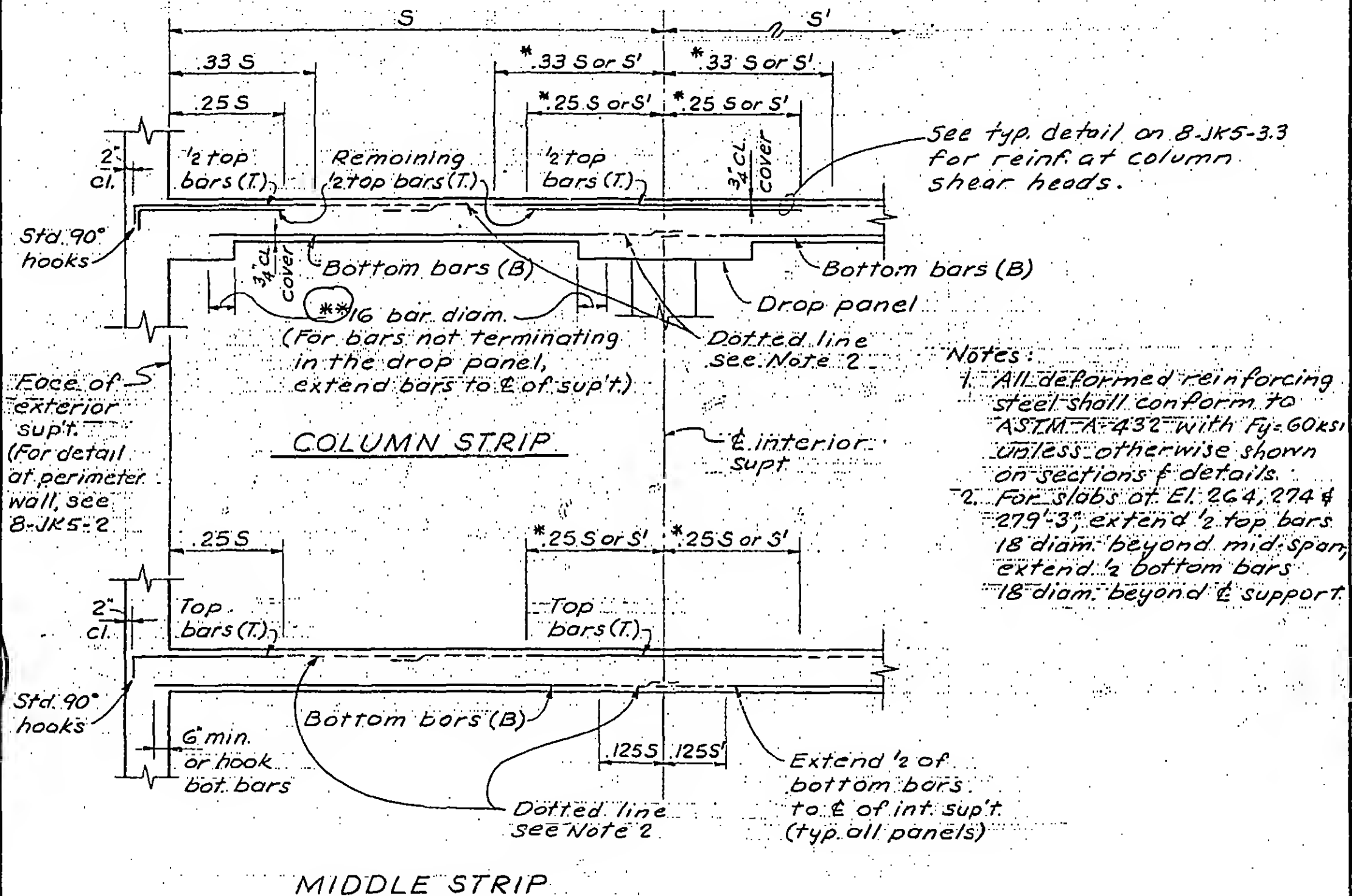
REVIEWED
E.LIU

REVISIONS

12-18-68

1-22-69

2-14-69



* S or S' whichever is larger

** For bars not terminating in drop panel, extend bars as shown for panels without drops (see 8-JK5-3.2).

8- JK5-3.1



DRAWN

S.C.

REVIEWED

J.M. & E.L.

WORTHINGTON, SKILLING, HELLE & JACKSON

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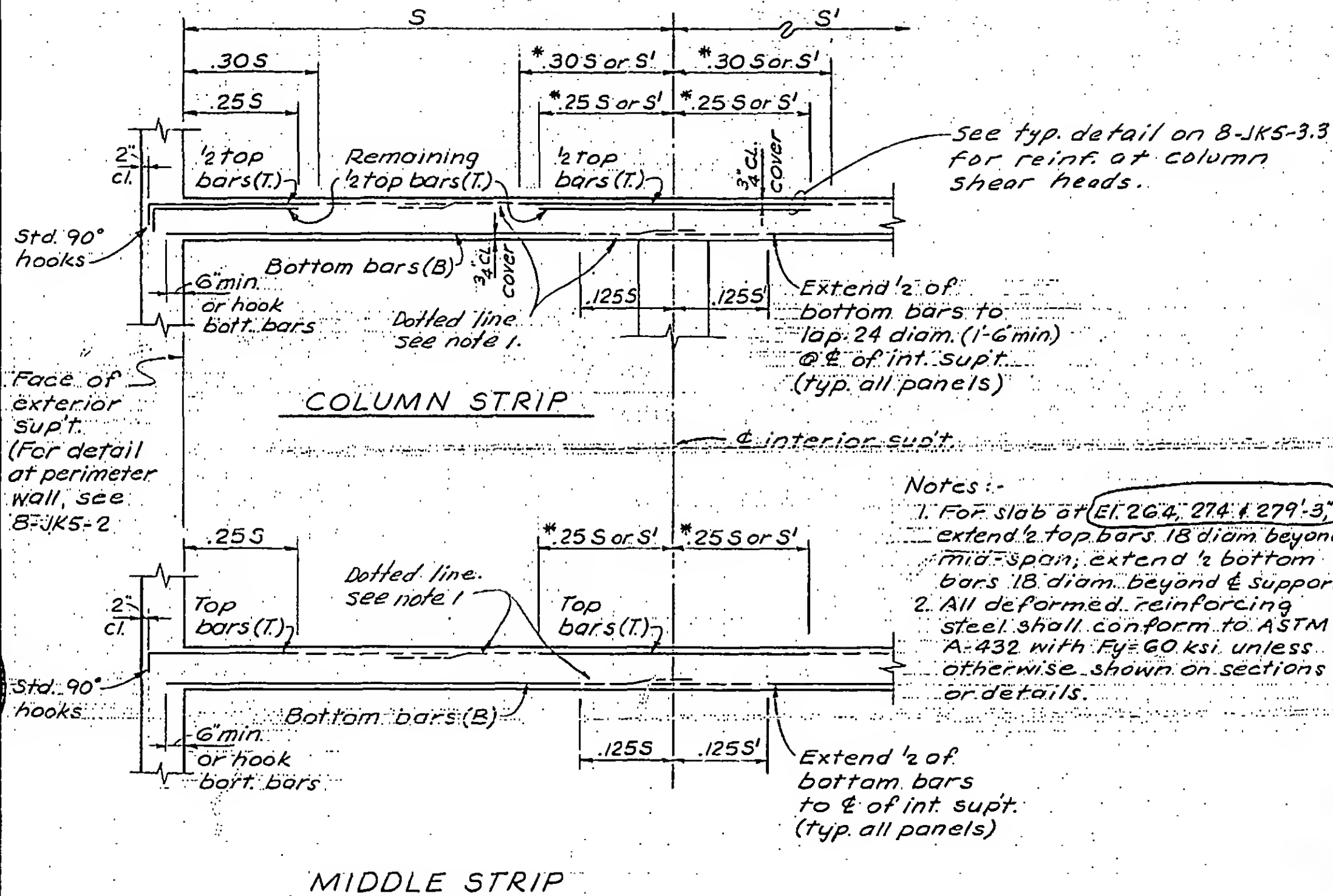
TITLE TYPICAL FLAT SLAB DETAILS-WITHOUT DROP PANELS

DATE 5-1-68

REVISIONS

12-18-68

1-22-69



DRAWN

S.C.

REVIEWED

J.M. & E.L.

8-JK5-3.2

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

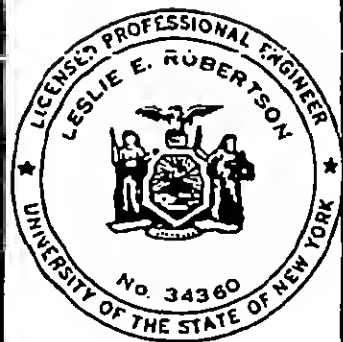
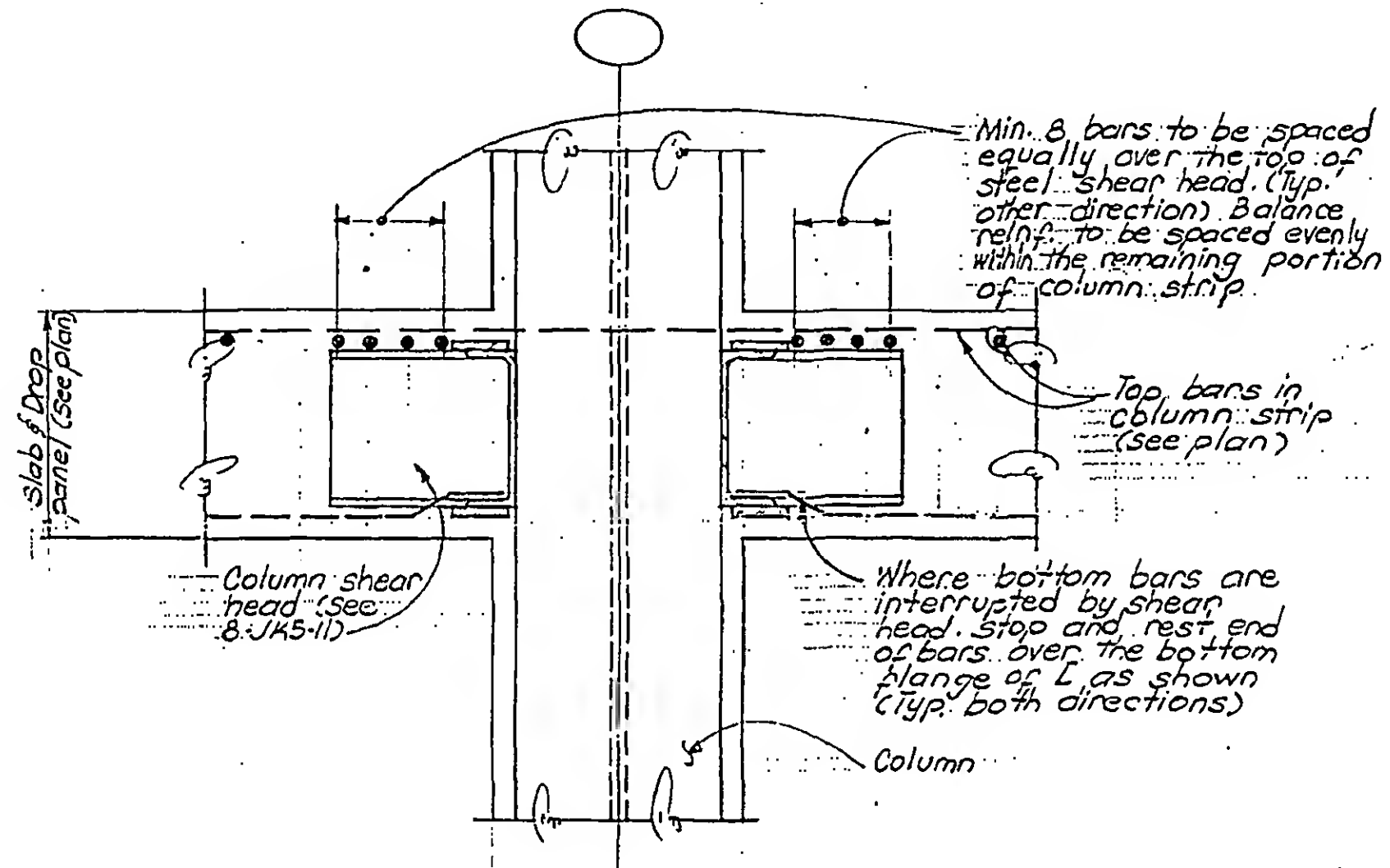
Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

TITLE TYPICAL DETAIL OF REINF. OVER COL. SHEAR HEADS

DATE 12-18-68

REVISIONS



DESIGNED

DRAWN

S.M.

REVIEWED

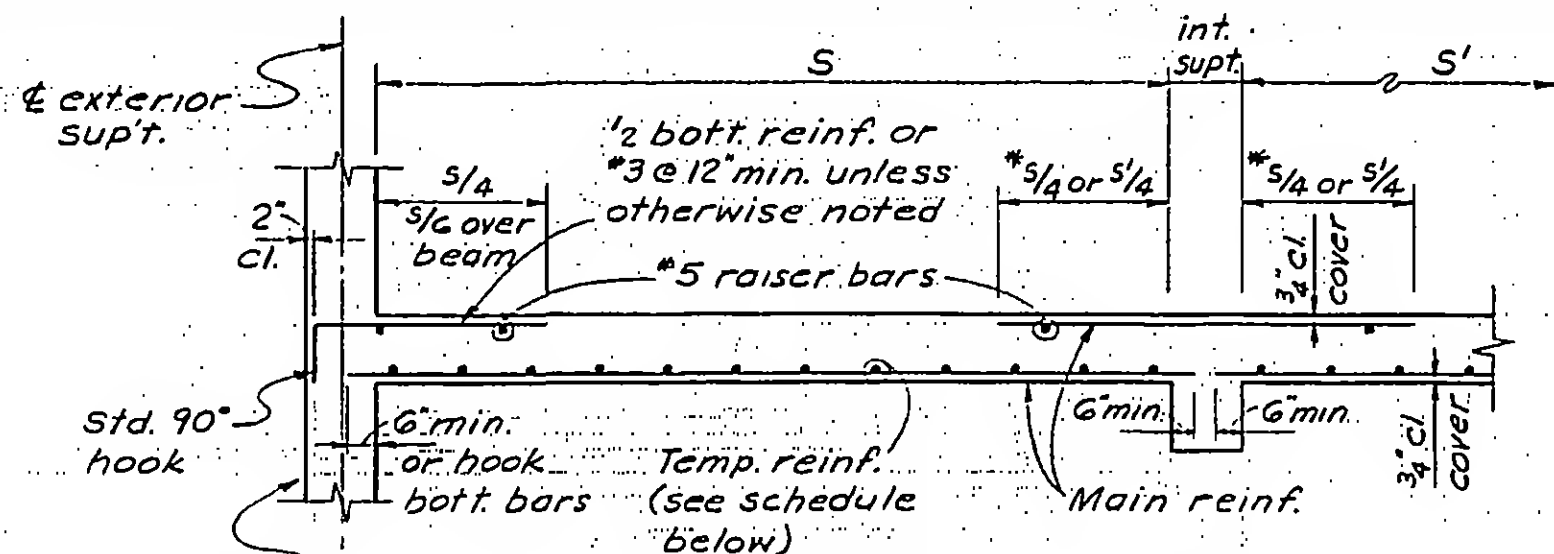
J.M. & E.L.

8-JK5-3.3

REVISIONS

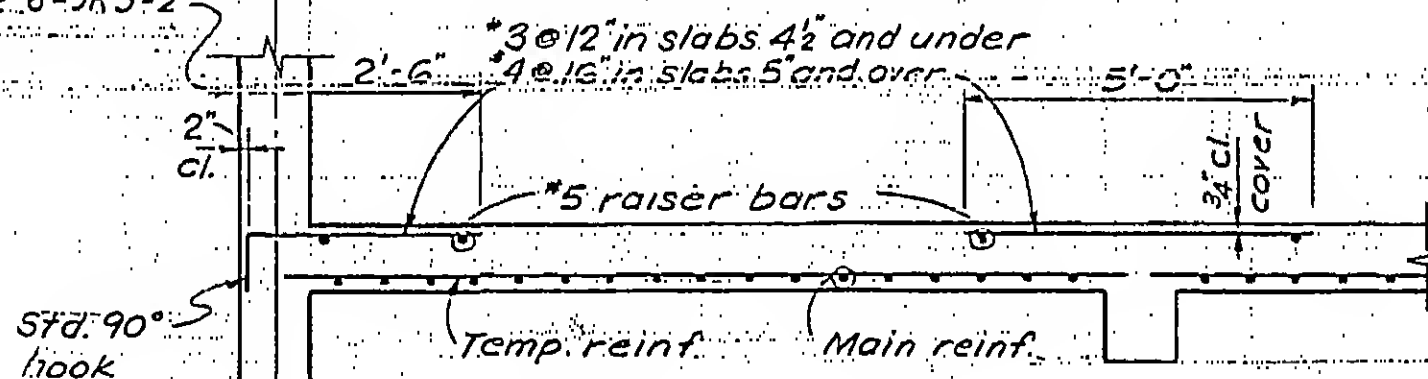
12-18-68

3-7-69



TYPICAL ONE-WAY SLAB

For detail at perimeter wall, see 8-JK5-2



TOP BARS WHERE MAIN SLAB REINF IS PARALLEL TO SUPPORT

* S or S' whichever is larger.

TEMPERATURE REINF. SCHEDULE

4 1/2" slab	*3 @ 12"
5" to 6"	*4 @ 16"
6 1/2" to 7"	*4 @ 14"
7 1/2" to 8"	*4 @ 12"
8 1/2" to 10"	*5 @ 14"
10 1/2" to 12"	*5 @ 12"
12 1/2" to 14"	*5 @ 11"
14 1/2" to 15"	*5 @ 10"

NOTES:

1. Top bars shall be provided at all slab supports as shown unless heavier reinf. is indicated on Plans or Sections. Lap temp. reinf. 1'-6" min., one raiser bar may replace one temp. bar.
2. All deformed reinforcing steel shall conform to ASTM A-432 with F_y 60 ksi unless otherwise shown on sections or details.



DRAWN

S.C.

J.M. & E.L.

8-JK5-4.1

WORTHINGTON, SKILLING, HELLE & JACKSON

Civil & Structural Engineers

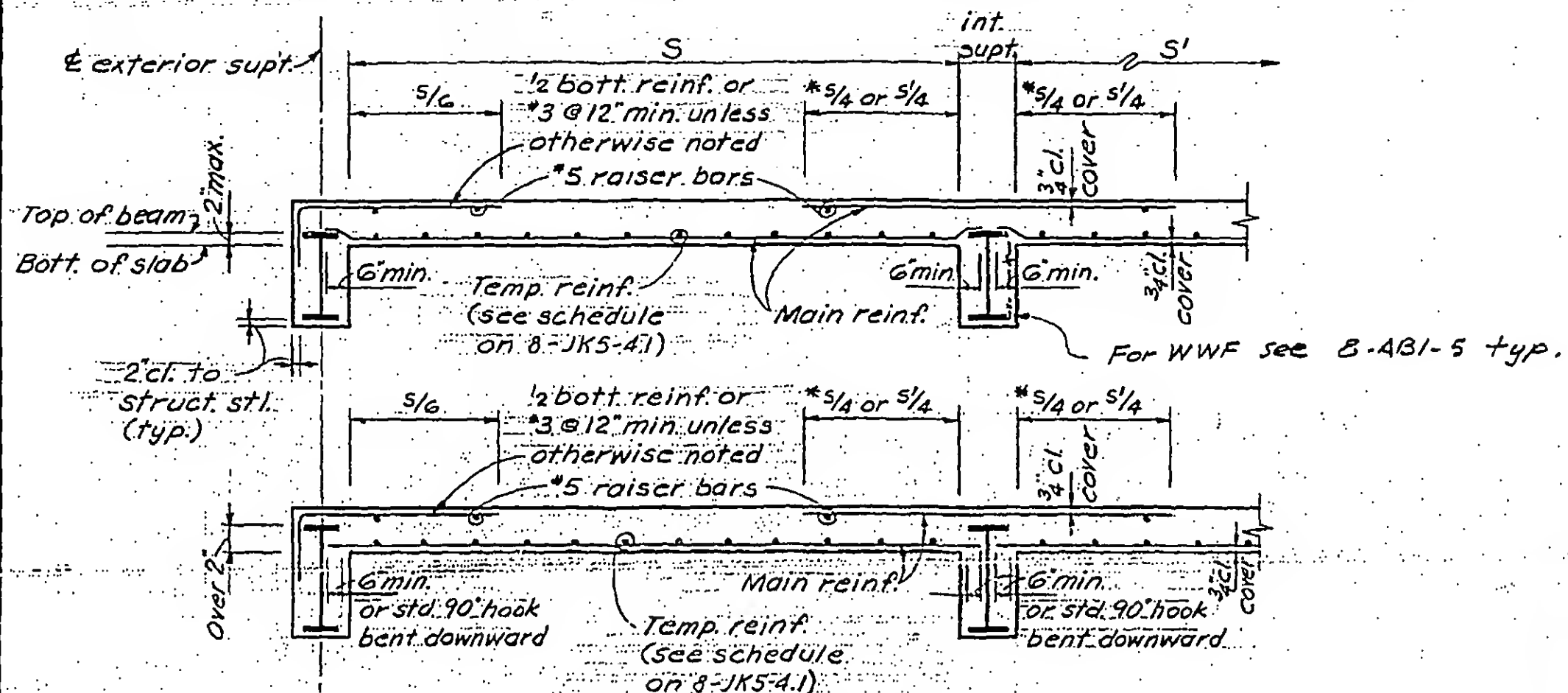
PROJECT THE WORLD TRADE CENTER

TITLE TYP. DETAIL -- ONE-WAY SLAB OVER STEEL STRUCT.

DATE 5-1-68

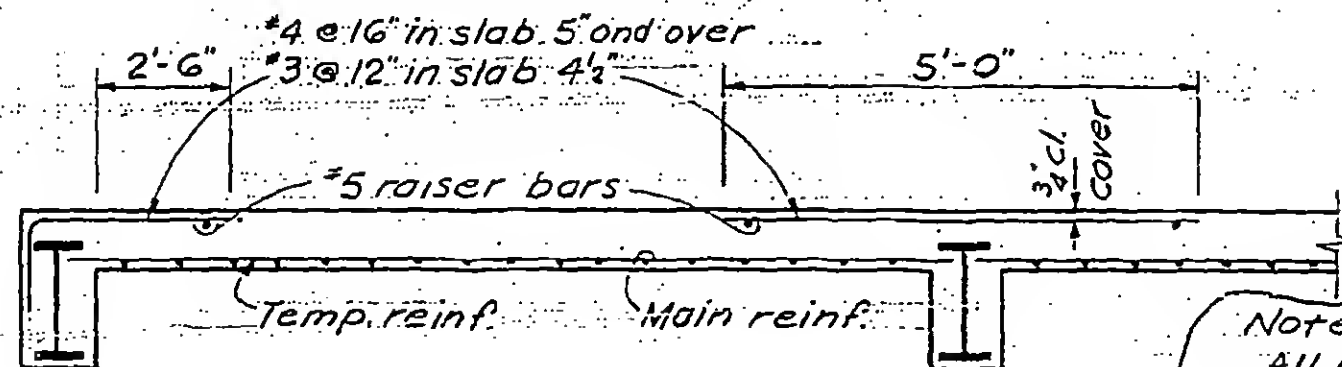
REVISIONS

12-18-68



TYPICAL ONE-WAY SLAB

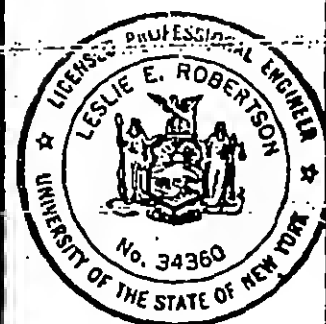
(with concrete fire-proofing to steel beams)



TOP BARS WHERE MAIN SLAB REINF. IS PARALLEL TO SUPPORT

Note:
All deformed reinforcing steel shall conform to ASTM A-432 with $f_y = 60 \text{ ksi}$ unless otherwise shown on sections or details.

* S or S' whichever is larger

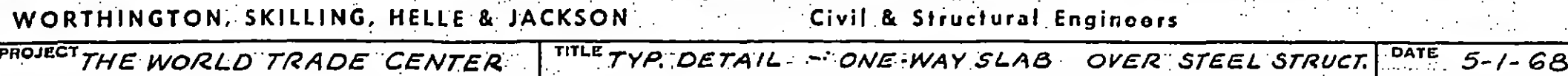


DRAWN
S.C.

REVIEWED

J.M. & C.

8-JK5-4.2



8-JK5-4,3



WORTHINGTON, SKILLING, HELLE & JACKSON

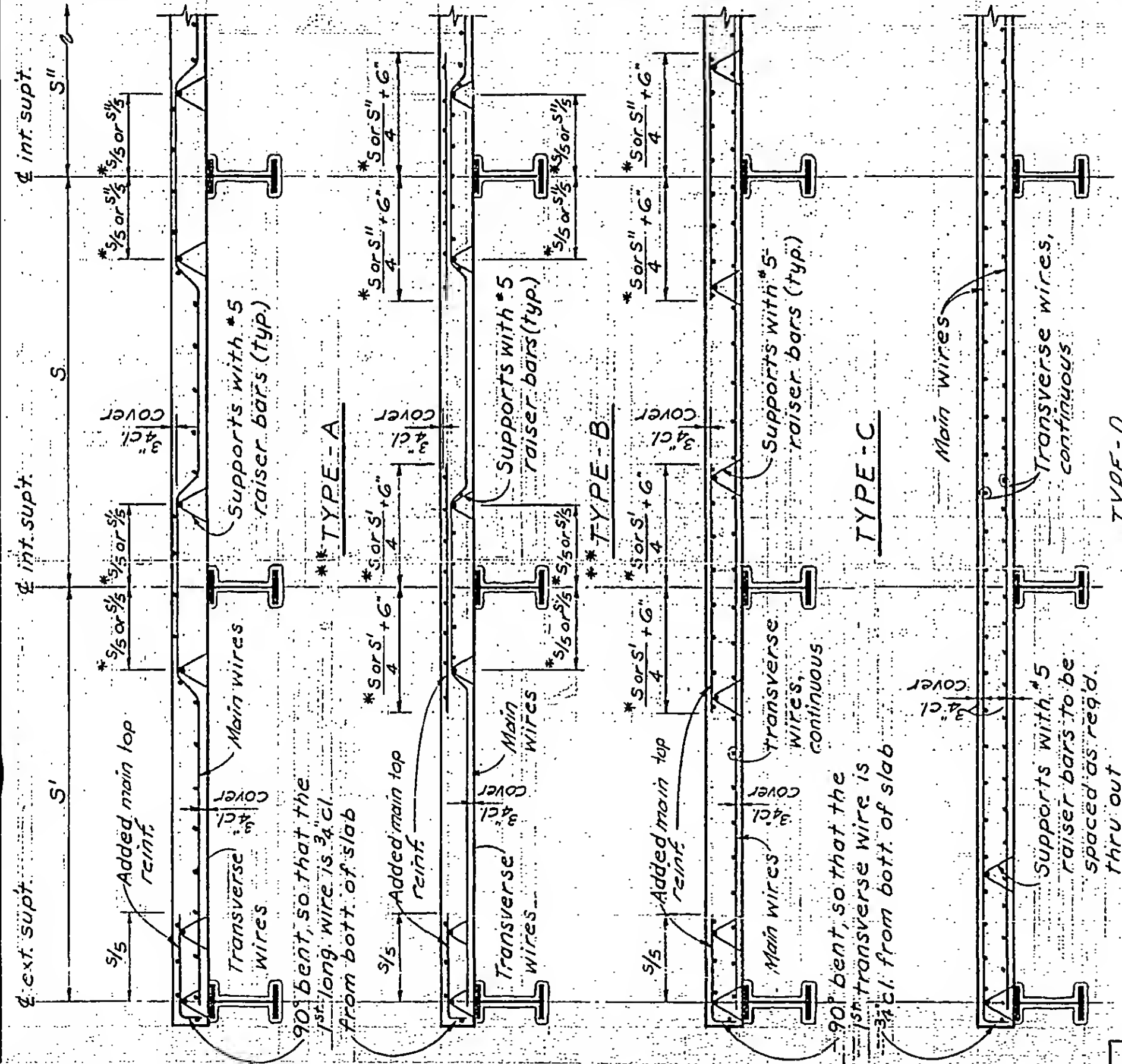
Civil & Structural Engineers

PROJECT THE WORLD TRADE CENTER

TITLE TYP. DET. OF ONE-WAY SLAB-ON STEEL STRUCT. WITH W.W.F

DATE 5-1-68

REVISIONS



8 - JK5-5.1

* Which ever is larger.
** Types A & B are limited to span less than 10'-0" and size of wire not exceeding $\frac{1}{4}$ " in diameter.

Notes: (cont.)
4. Main wires are parallel to the span of the slab, regardless of position on mesh roll or mat.

NOTES:

1. See 8-JK5-7 for one-way slab schedule with W.W.F.
2. See 8-JK5-5.2 for top wires at locations where main reinf. parallel to support.
3. Splice main wires where shown, and splice continuous transverse wires by overlapping edges of W.W.F. Overlap dist. $\geq 4d$, but not less than 12" = crosswire spacing + 2.



SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

Structural & Civil Engineers

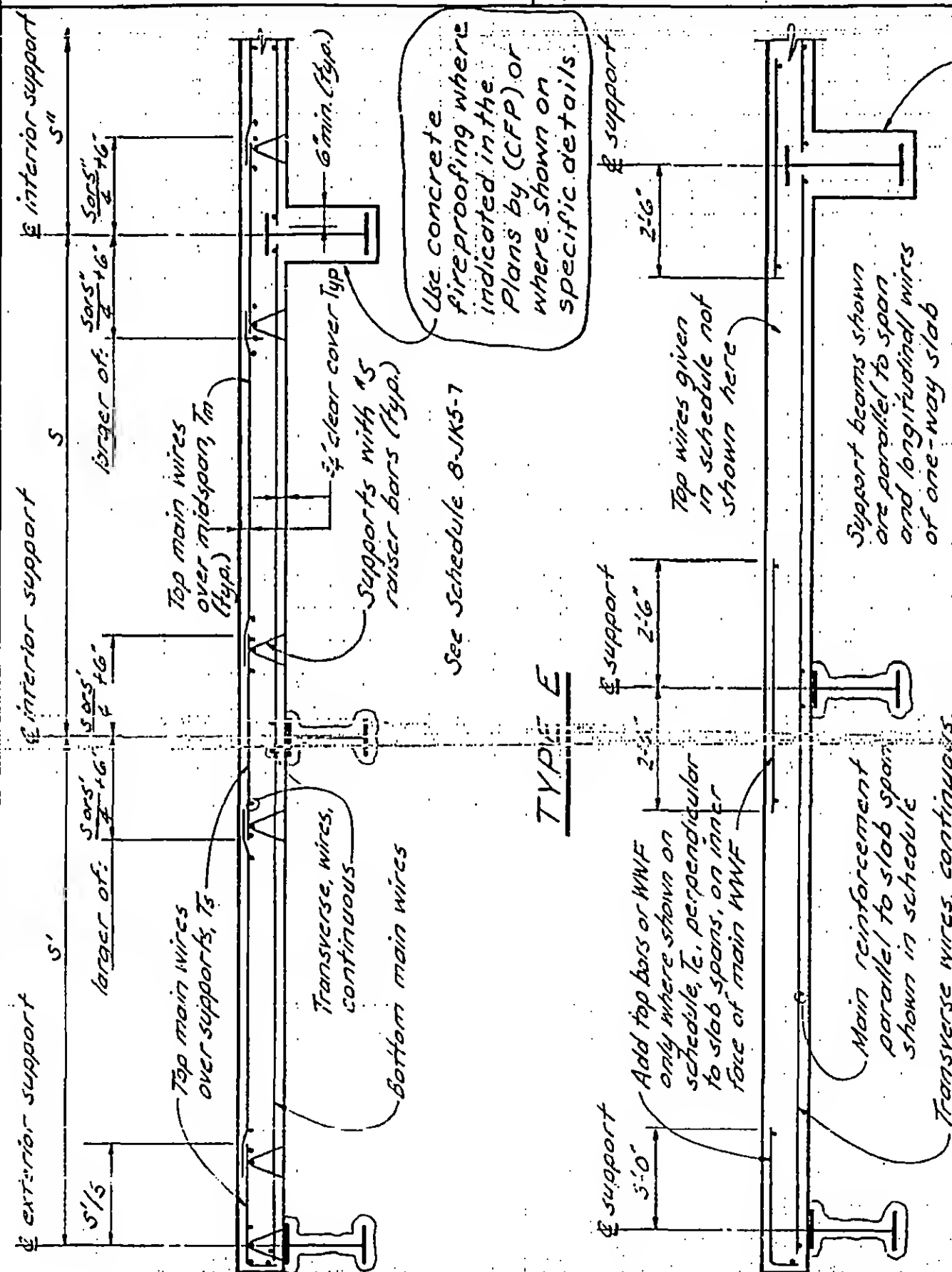
PROJECT *THE WORLD TRADE CENTER*

TITLE
TYPICAL DETAILS-ONE-WAY SLAB ON STEEL WITH W.W.F

DATE 5-1-68

REVISIONS

8-23-68



See Schedule 8-JK5-7

ADDED TOP REINFORCEMENT
AT SUPPORTS PARALLEL TO SLAB SPAN.

FOR SLAB TYPES: A, B, C, D, E

NOTES:

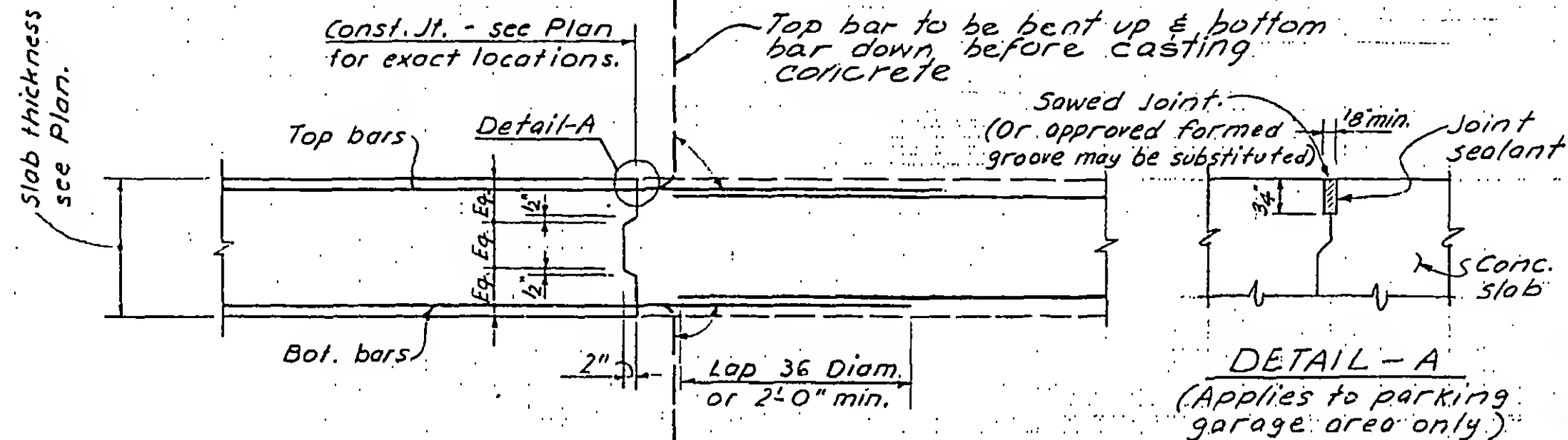
1. In all cases, main reinforcement is parallel to the span of the slab, regardless of position on the mesh roll or mat.
2. Splice main wires where shown, and splice continuous transverse wires by overlapping edges of WWM. Overlap distance between outermost cross wires = crosswire spacing $\times 2$.

B-JK5-5.2

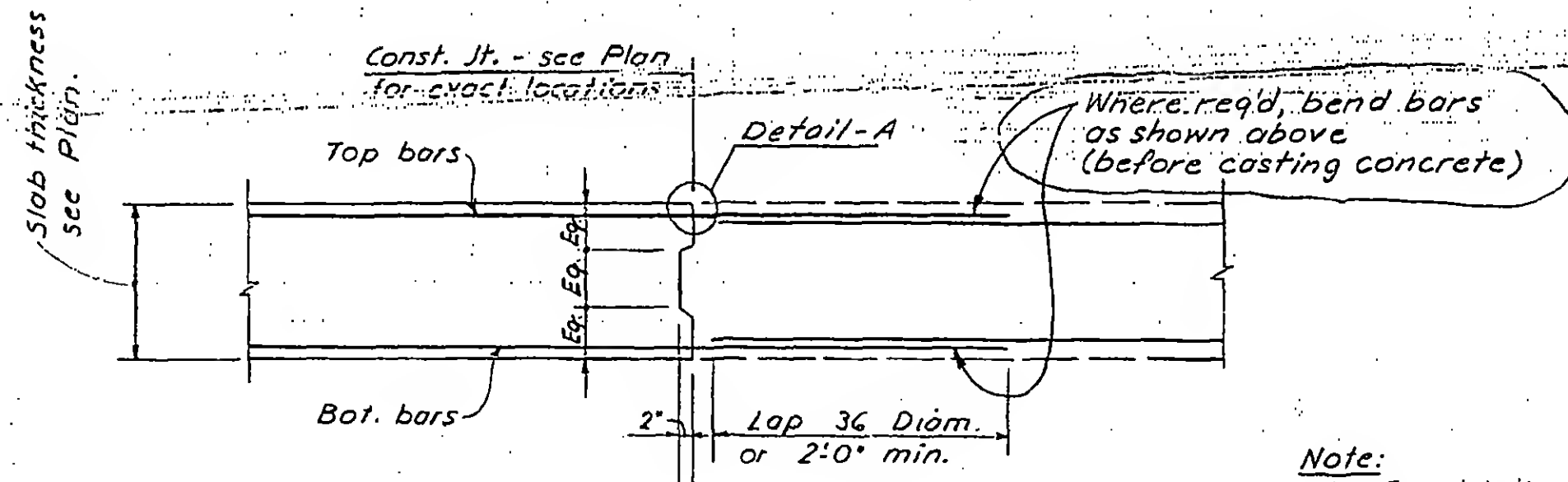
REVISIONS

12-18-68

6-6-69



Construction Joint Adjacent to Existing Path Tube



Note:

1. For detail of const. joints at El. 264, see 8-AB4-9.1

Typical Construction Joint Detail



DRAWN

S.C.

REVIEWED

J.M. & E.L.

8-JK5-6

Structural & Civil Engineers

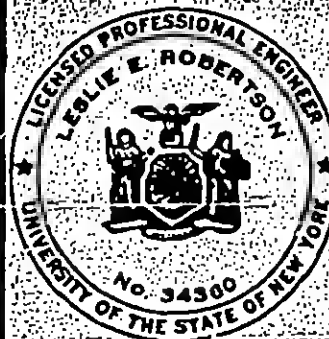
TITLE ONE WAY SLAB WITH W.W.F. SCHEDULE

DATE 12-18-68

REVISIONS

5-5-69

REMARKS



REGIONE

2008年12月

REVIEWS

Note

For notes see 8-JK5-7.1

8-JK5-7.3

SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

TITLE ENCASEMENT OF COLUMN BASE PLATES

DATE 5-1-68

REVISIONS

10-6-69

10-15-69

Concrete encasement
to steel column
see dwg. 8-JK6-11

Steel column
(see col. sch.
in book 10)
See 8-JK5-10.2 for
detail of joint
around columns

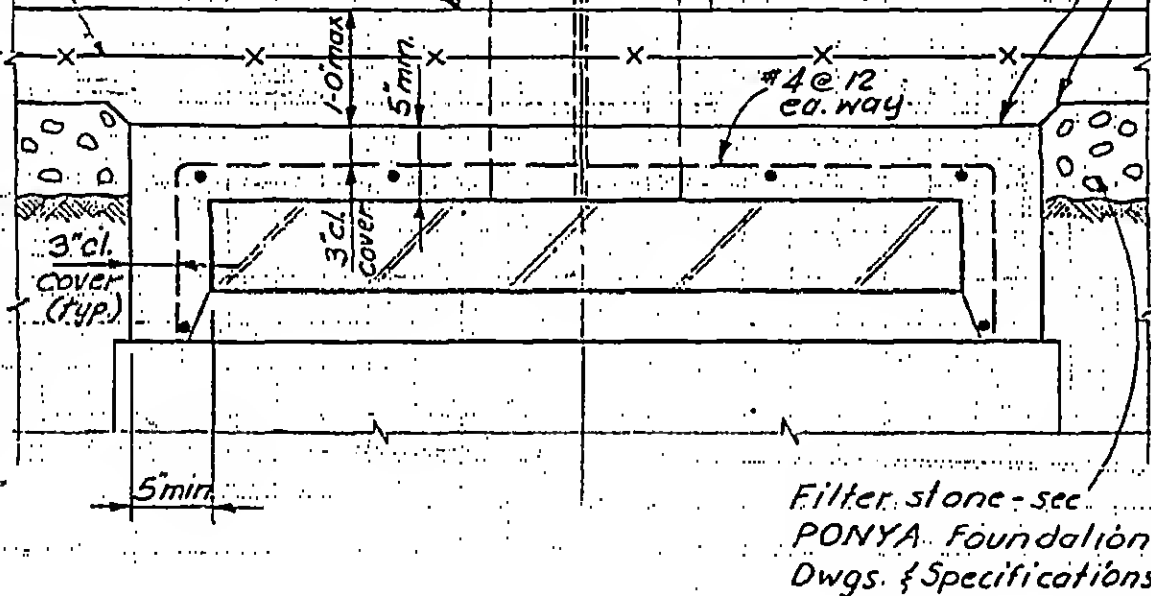
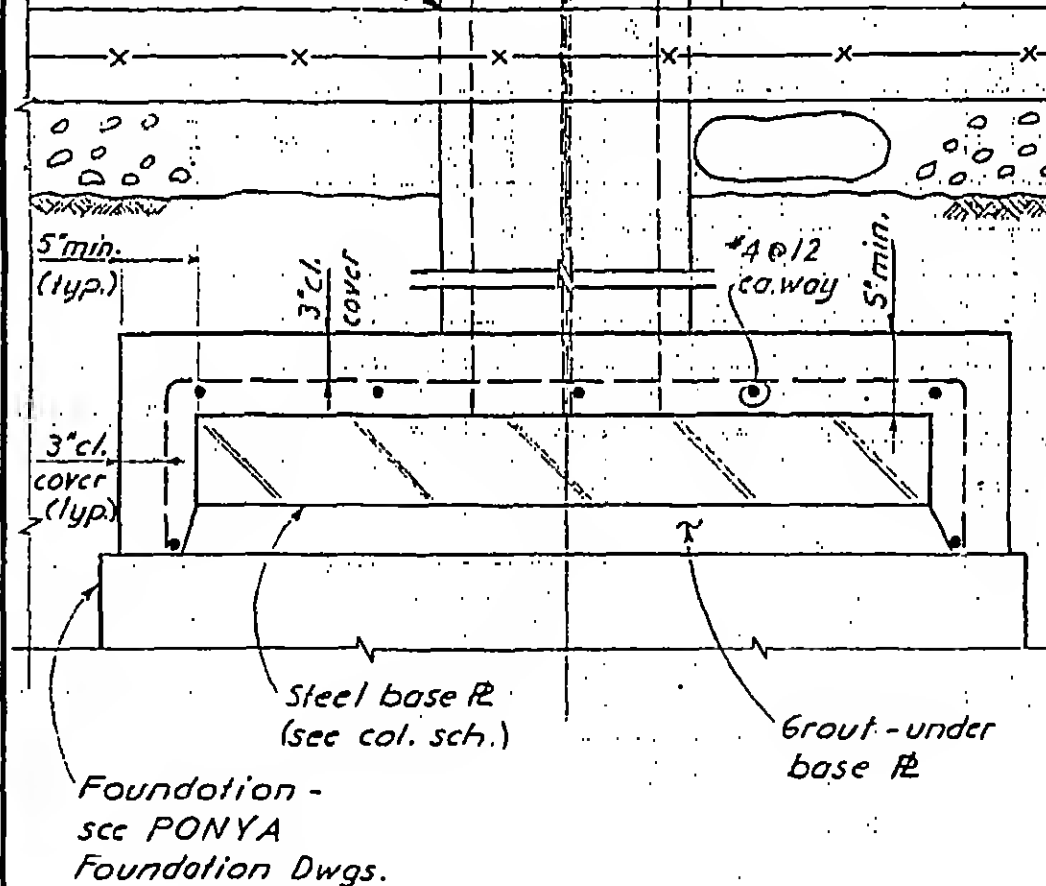
Slab on grade
(See Plan)

Reinf. - see
dwg. 8-JK5-10

See 8-JK5-10.2 for
detail of joint
around columns

Turn slab down and
support on base R
encasement.

Steel trowel top
of conc. encase-
ment and paint
with heavy coat
of asphalt before
pouring slab over.



DETAIL OF SLAB ON GRADE AT COLUMN BASES

(where top of col. base R is 1'-5" or less
below top of slab)

NOTES:

1. See PONYA dwg. for top elevation of foundations.

TYPICAL DETAIL OF CONCRETE ENCASEMENT OF BASE PLATES

(where top of col. base R is more than
1'-5" below top of slab.)



DRAWN
S.C.

REVIEWED
E.L.

8-JK5-9

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

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PROJECT THE WORLD TRADE CENTER

TITLE COLUMN BASE PLATE AND FOOTING

DATE 12-10-71

REVISIONS

2" top of 3/4" A325 Abatts

2'-0" dowels all around may be bent up if necessary

Footing ($f_c = 3000 \text{ psi}$)

Excavation for the column and its footing. Refill same after column is erected.

Concrete box out (See SCK-22)

Recast with $f_c = 3000 \text{ psi}$ concrete after column is erected.

2'-0" splice

See 8-JK5-9 for concrete encasement and joint details of column.

New W.W.F. 6x6-6/6 ($F_y = 60 \text{ ksi}$)

2'-0" splice

Existing slab on grade El. 242'-0"

El. 241'-0"

See plan

See 10-JK3-2

Sound rock

Detail A

See plan

6" typ

See plan

6" typ

Section a-a



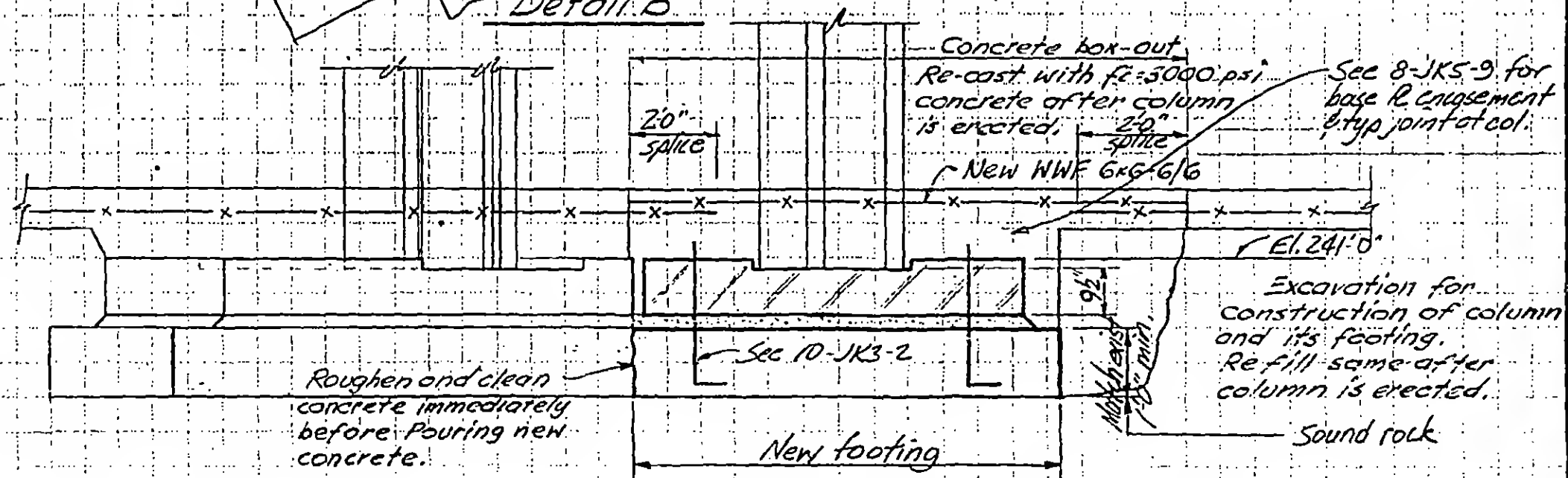
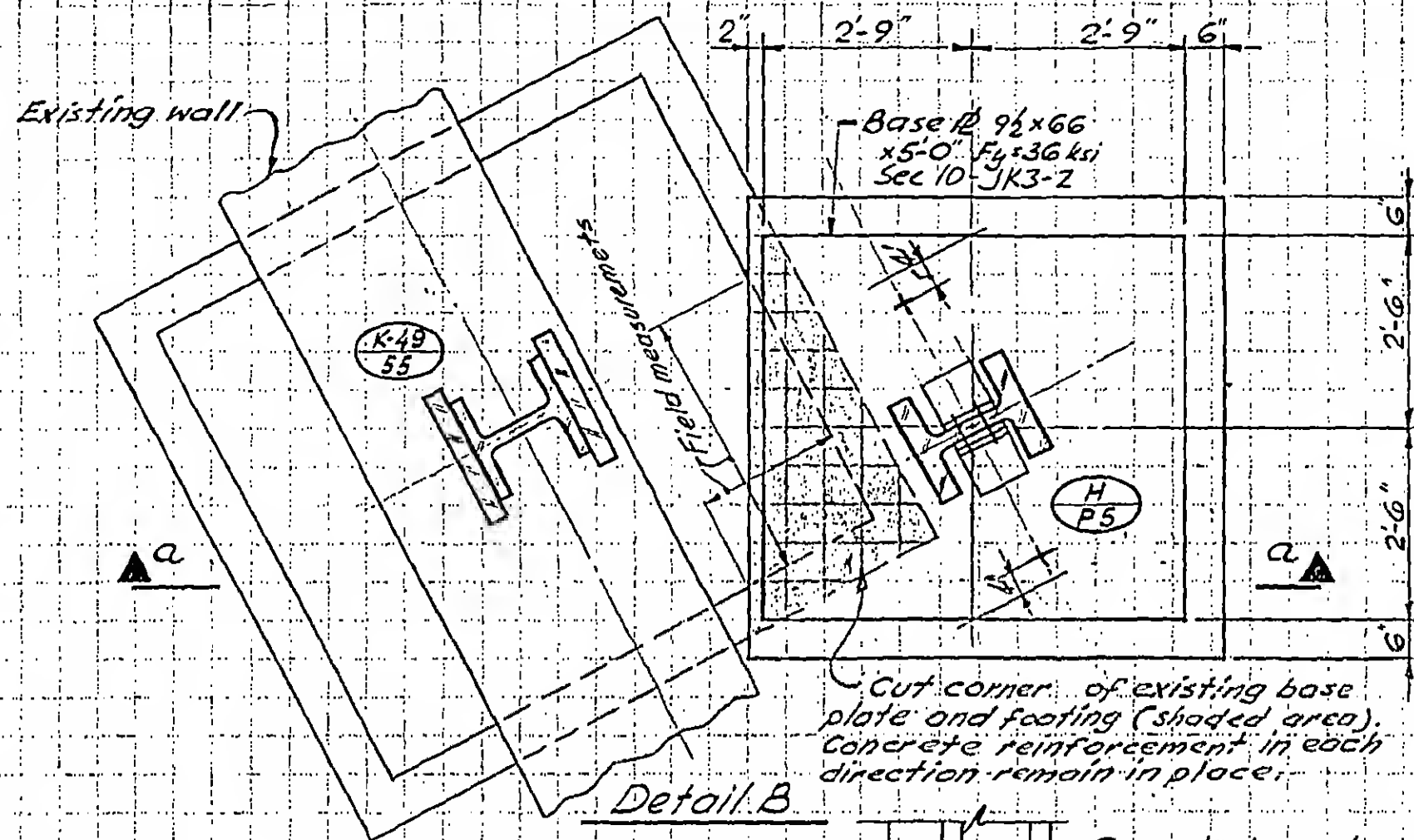
DESIGNED KC

DRAWN J. Gracius

REVIEWED

8-JK5-9.2

REVISIONS



DESIGNED

KC

DRAWN

J. Grigoriu

REVIEWED

Section a-a

8-JK5-9.3

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

Structural & Civil Engineers

PROJECT

THE WORLD TRADE CENTER

TITLE

WALL FOOTING

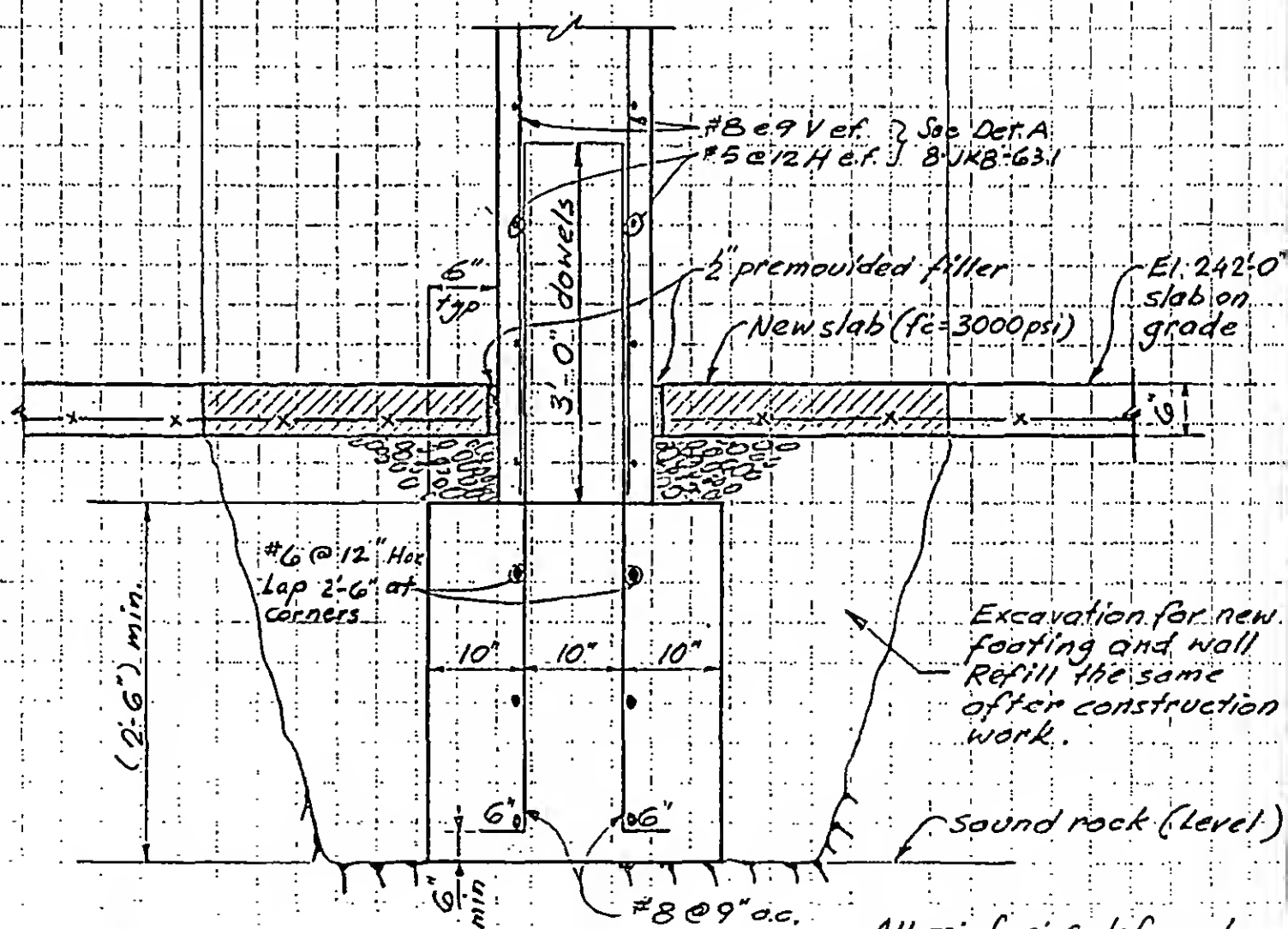
DATE

12-10-71

REVISIONS

12/17/71

Box-out along new wall in slab on grade, its width be kept minimum in order to construct the wall and footing. Reinforcement shall be cut and placed as shown, and if necessary, the reinforcement may be bent until new slab is to be poured.



All reinforcing deformed bars, $f_y = 60 \text{ ksi}$

Section C-C



DESIGNED

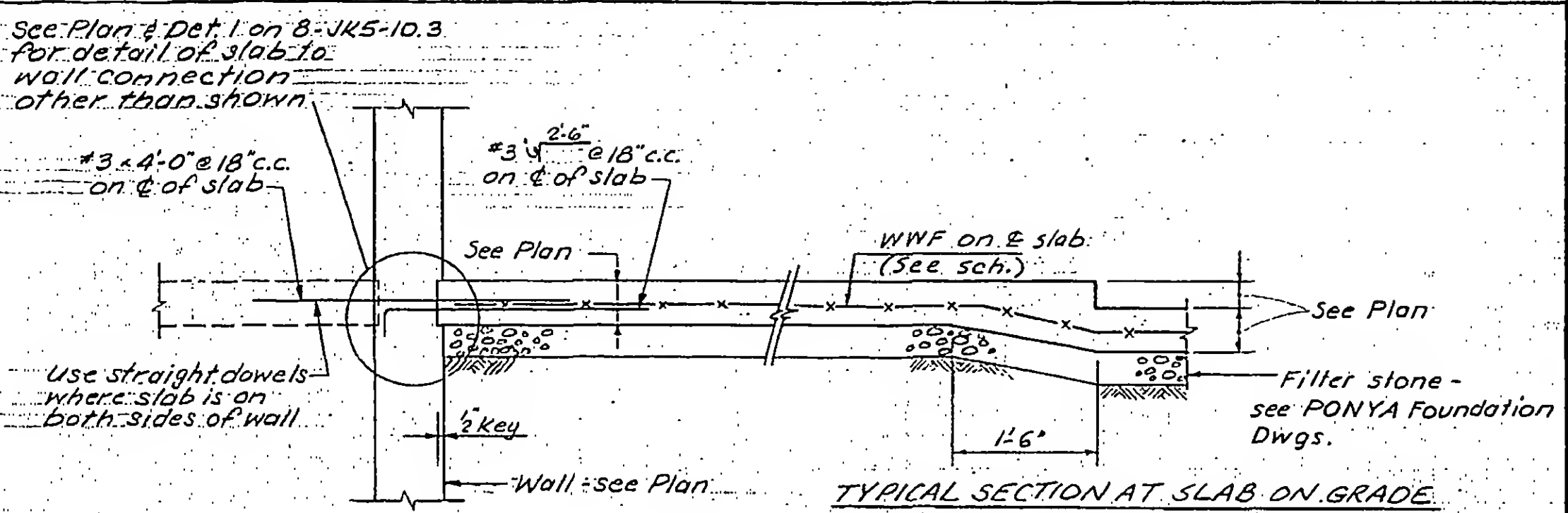
C.K.

DRAWN

J.G.

REVIEWED

8-JK5-9.4



SCHEDULE	
Slab thckn. t	W. W. F. REINFORCING
3"	6 x 6 - 10/10
6"	6 x 6 - 6/6
8"	6 x 6 - 4/4
10"	6 x 6 - 3/3
12"	4 x 4 - 4/4
Over 12"	1 layer of 4 x 4 - 4/4 for each 12" or portion thereof of slab thickness



DRAWN

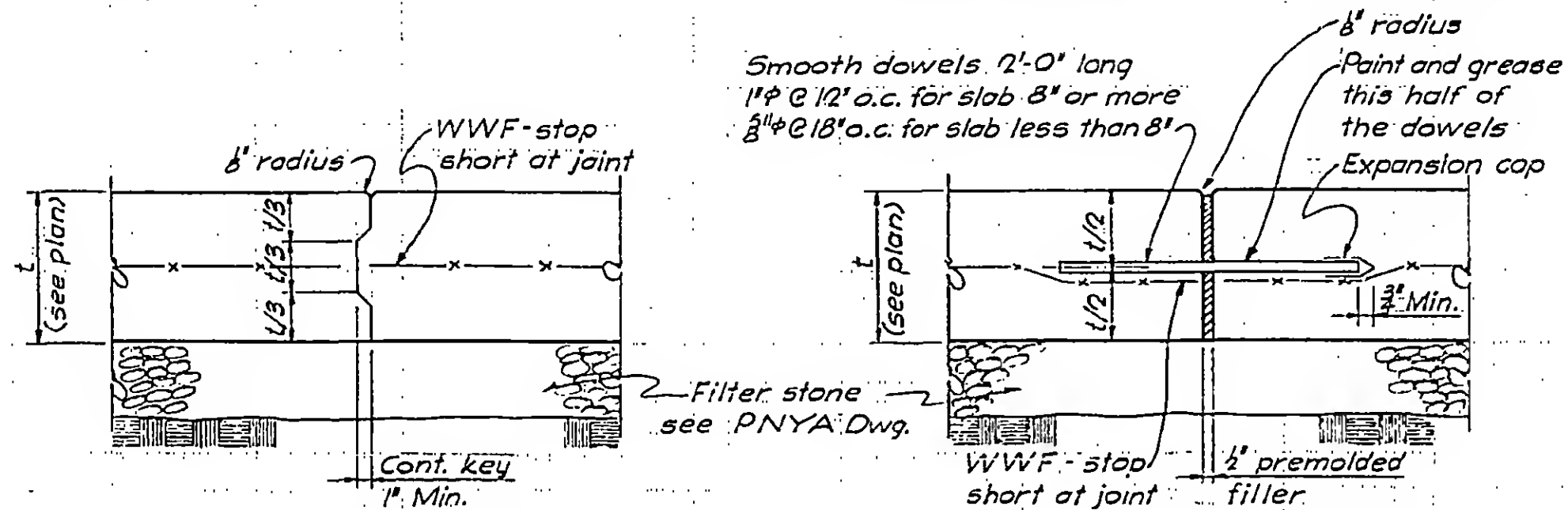
S.C.

REVIEWED

E.L.

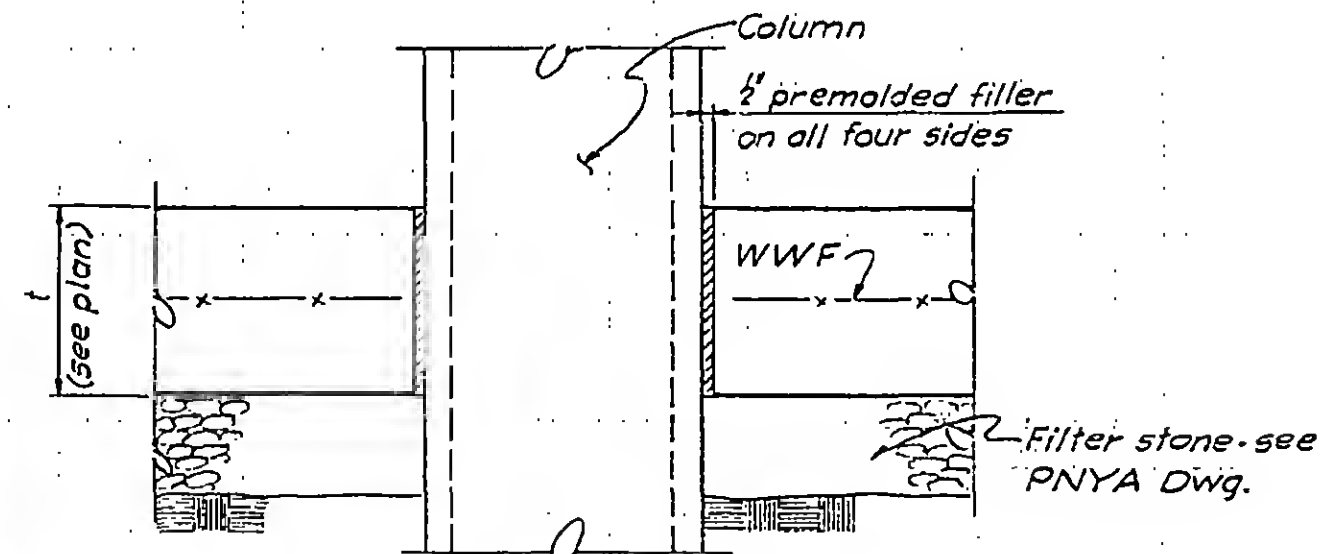
8-JK5-10.1

REVISIONS



TYPICAL CONTROL JOINT DETAIL

TYPICAL EXPANSION JOINT DETAIL



TYPICAL JOINT DETAIL AT COLUMN



DESIGNED

DRAWN
G.K.

REVIEWED
E.L.

8-JK5-10.2

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

Structural & Civil Engineers

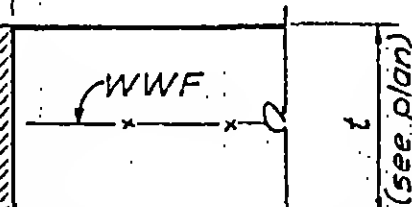
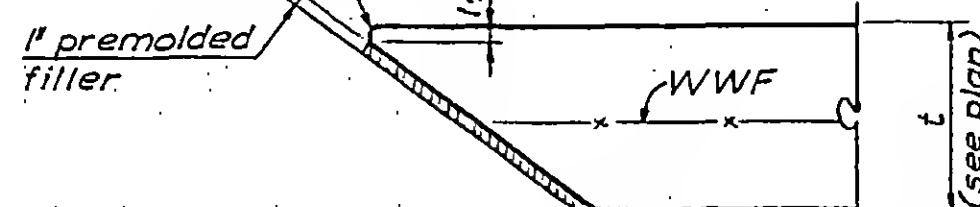
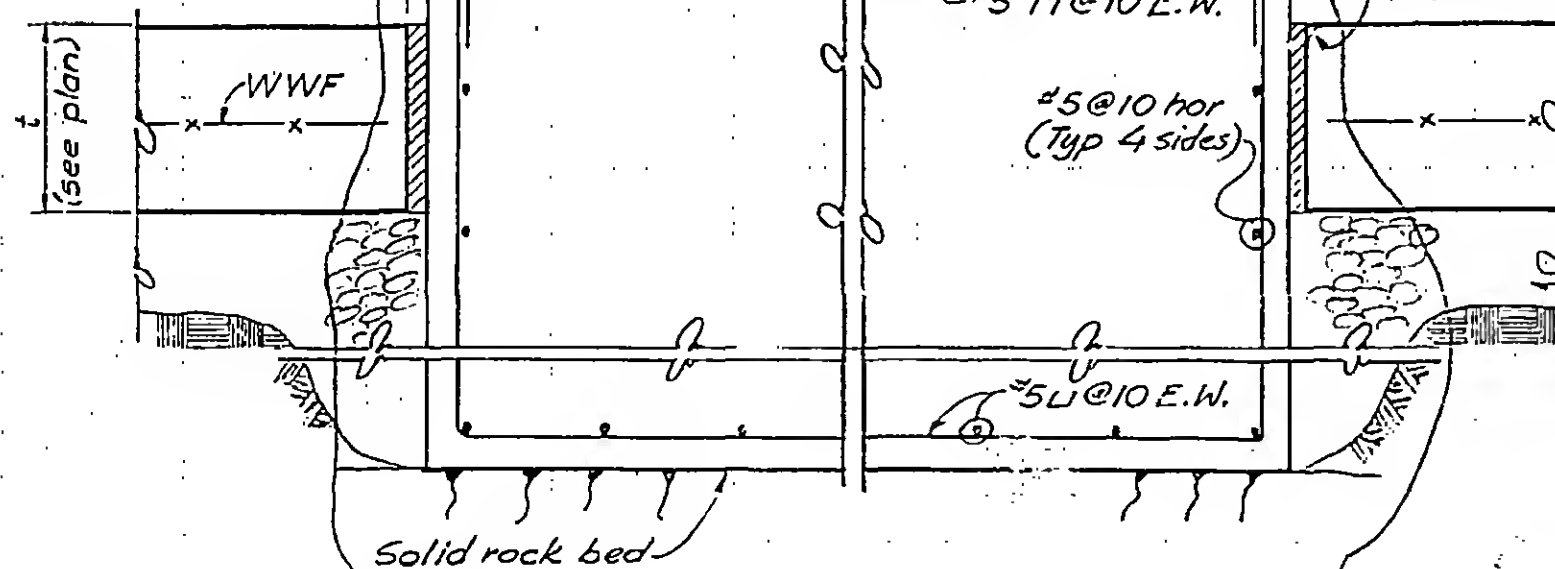
PROJECT THE WORLD TRADE CENTER

TITLE JOINT DETAILS FOR SLAB ON GRADE

DATE 10-6-69

REVISIONS

12-12-69

Face of slurry
wall or R.C. wall $\frac{1}{2}$ " premolded fillerFilter stone-see
PNYA Dwg.DETAIL 1Top of Conc. buttress.
See PNYA Dwgs. for
details and locations.
 $\frac{1}{8}$ " radius $\frac{1}{8}$ " premolded
fillerFilter stone-see
PNYA Dwg.DETAIL 2 $\frac{1}{2}$ " Premolded filler
(Typ. all sides)Dimension & top
Elev. of machine
foundation. See plan? $\frac{1}{8}$ " radius- Req'd. only
when top of machine
foundation is at same
Elev. as top of slab.
(Typ. all around)Filter stone-see
PNYA Dwg.

Solid rock bed

DETAIL 3

DESIGNED

DRAWN

REVIEWED

E.L.

B-JK 5-10.3

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

Structural & Civil Engineers

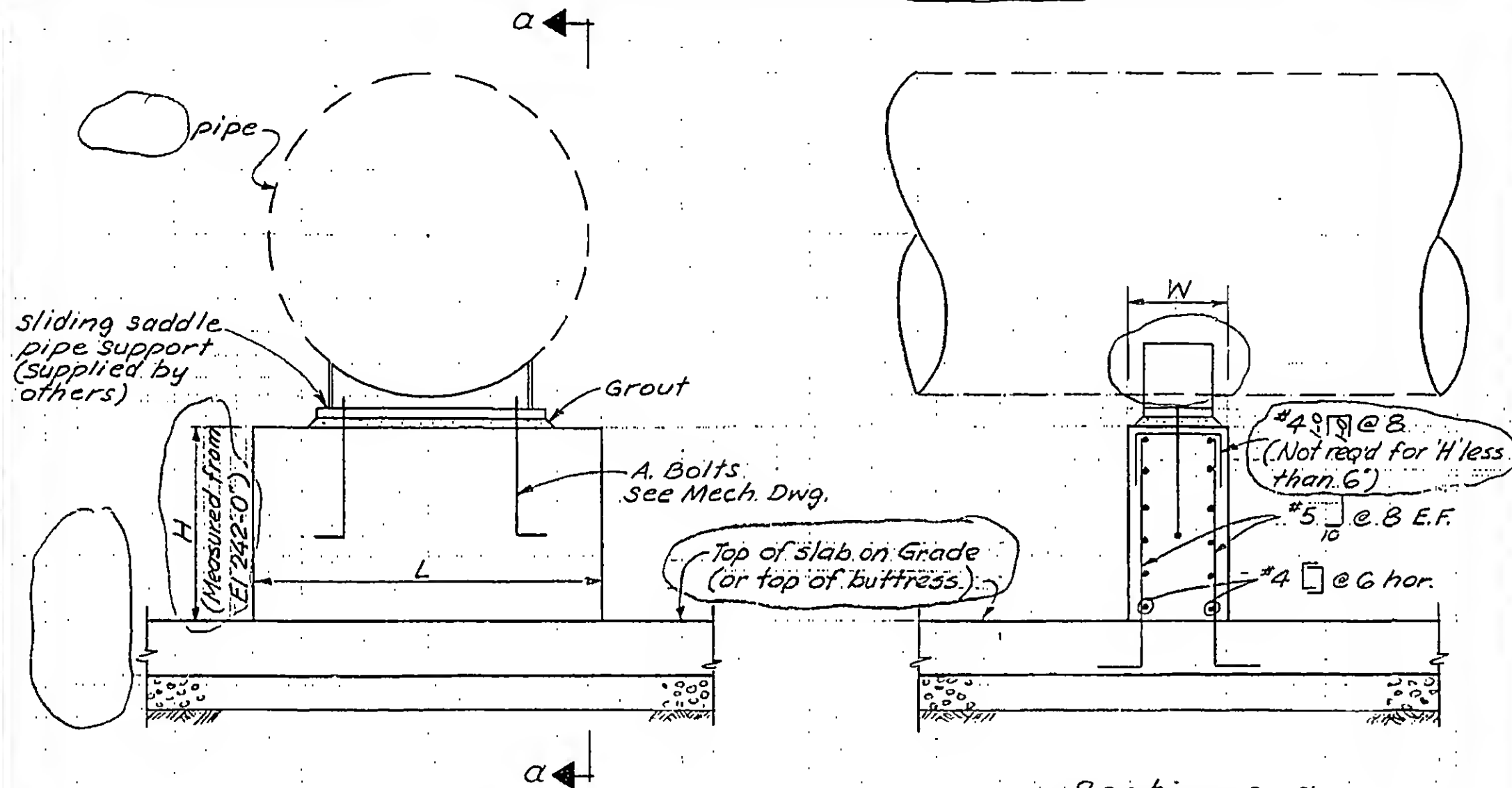
PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE SUPPORT (FOR PIPES)

DATE 10-6-69

REVISIONS

12-12-69



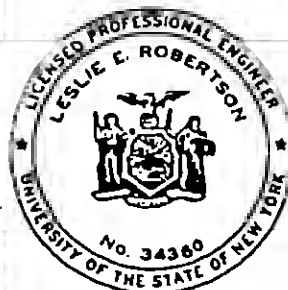
MK	Diam. of pipe	Max. load	Concrete support			MK	Diam. of pipe	Max. load	Concrete support		
			L	W	H				L	W	H
*	60"	24.2 ^K	4'-6"	1'-8"	*	AS-50	24"	5.6 ^K	2'-10"	1'-4"	2'-2 ³ / ₈ "
AS-43	30	8.2	3'-6"	1'-8"	0'-11 ³ / ₈ "	AS-51	24	5.6 ^K	2'-10"	1'-4"	2'-2 ³ / ₈ "
AS-44	36	11.3	4'-2"	2'-0"	0'-5 ³ / ₈ "						
AS-45	24	5.6	2'-10"	1'-4"	1'-2 ³ / ₈ "						
AS-46	30	8.2	3'-6"	1'-8"	0'-8 ³ / ₈ "						
AS-47	30	8.2	3'-6"	1'-8"	0'-5 ³ / ₈ "						
AS-48	24	5.6	2'-10"	1'-4"	0'-8 ³ / ₈ "						
AS-49	24	5.6	2'-10"	1'-4"	3'-8 ³ / ₈ "						

* See Sand-Courter dwgs. SC-R-9, SC-R-12 and 57R-125 for location and height (H) of conc. support

▲ See Sand-Courter dwgs. SC-R-3, SC-R-4, and R-1 thru R-9 for location and other information.

All concrete to be $f_c = 3000 \text{ psi}$

8-JK5-10.4



DESIGNED

DRAWN
S.C.REVIEWED
E.L.

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

TITLE CONC. FTG. FOR 5000 GAL. CONDENSATE TANK

DATE 10-20-69

REVISIONS

5000 Gal. condensate
tank above

5'-5 1/16"

13'-10"

W10110.77

N 4671.50

31

5'-6"

Ø-Tank

11'-2"

Conc. ftg.
see detail
below (Typ)PLAN
(4" = 1'-0")Top of conc. ftg.
see mech. shop dwg.
for elev.1. bolt
(supplied by others)

2-#5 □

4-#5 □

2-#4 □

Top of 10" slab
on grade

El. 242'-0"

1'-0" lin

1'-10" Sq.
(Min.)

NOTES:

1. All conc. to be $f'_c = 3000 \text{ psi}$ 

DESIGNED

DRAWN
D.C. Huggins

REVIEWED

E.L.

8-JK 5-10.5

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

Structural & Civil Engineers

PROJECT

THE WORLD TRADE CENTER

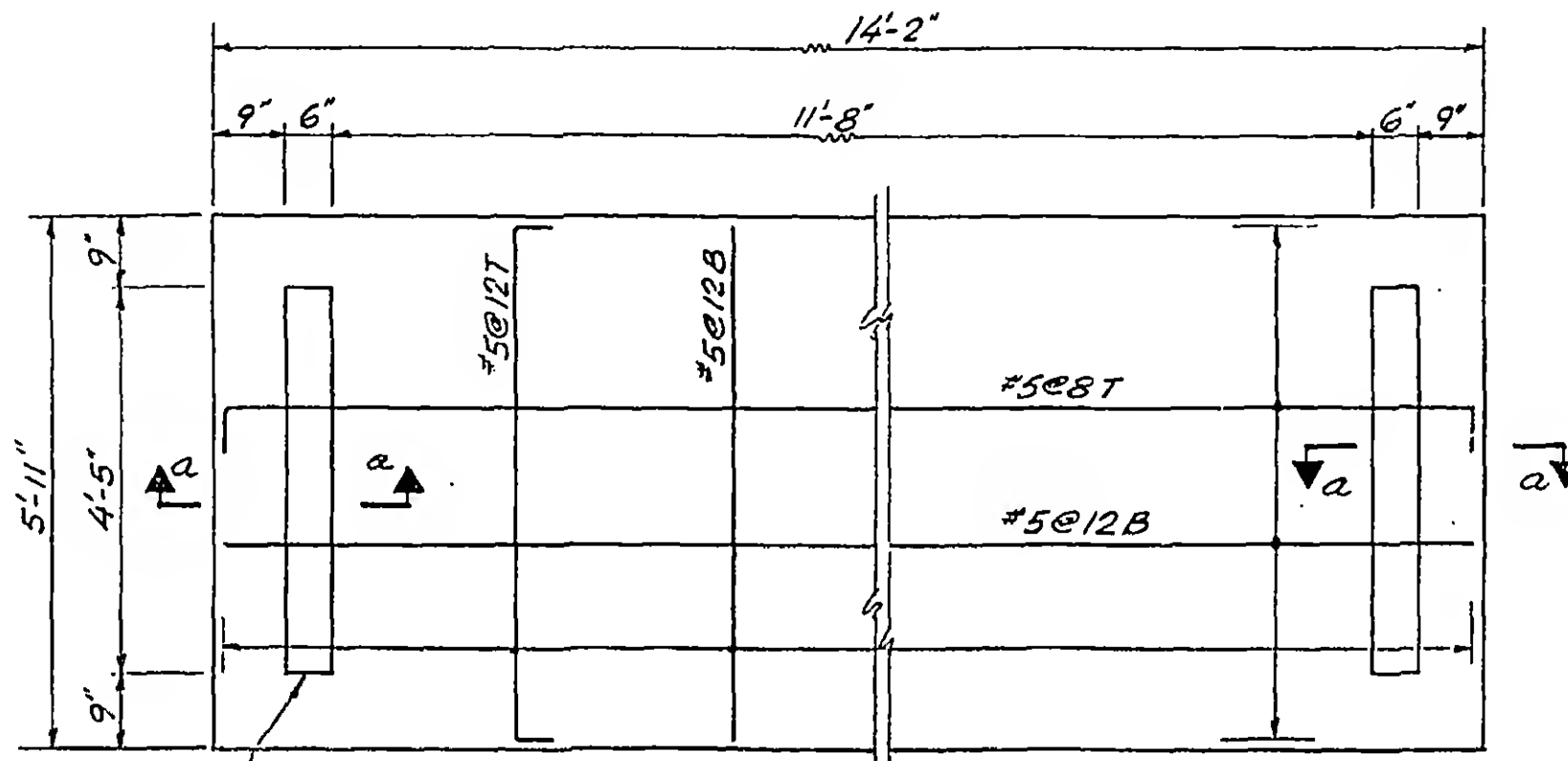
TITLE

REFRIGERATION ROOM-STORAGE TANK FOUNDATION

DATE

12-12-69

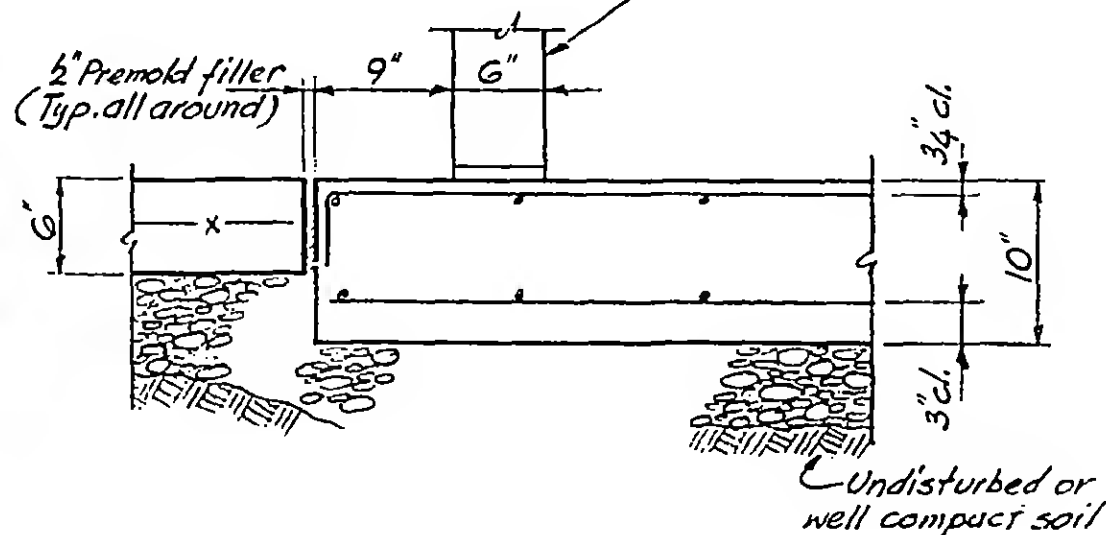
REVISIONS



Storage tank support
(by others)
(Mech. Dwg. 066-19616E900
by York)

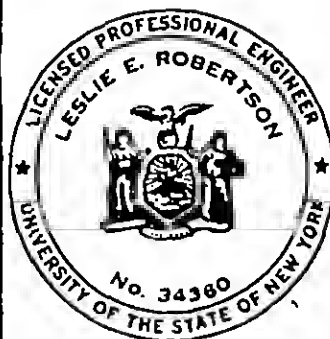
PLAN

1/2" = 1'-0"



Section a-a

(1" = 1'-0")



DESIGNED

DRAWN

J. Gricius

REVIEWED

E.L.

B-JK5-10.6

SKILLING, HELLE. CHRISTIANSEN ROBERTSON

Structural & Civil Engineers

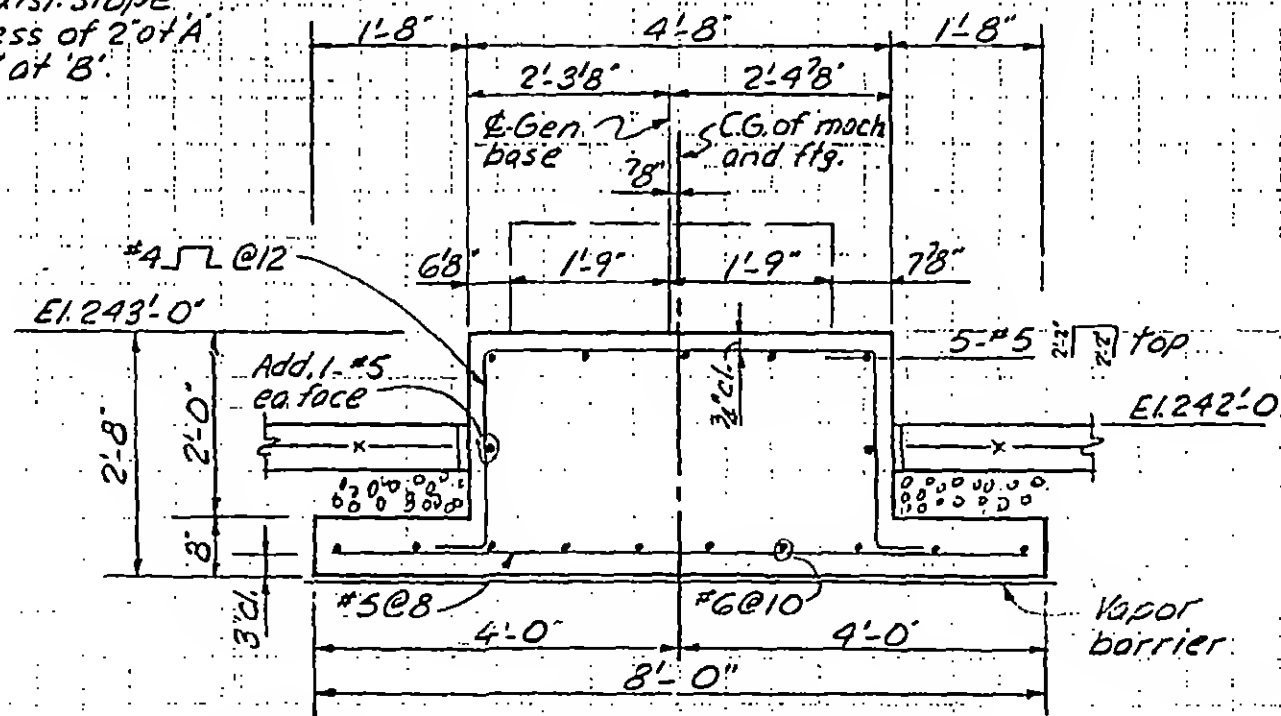
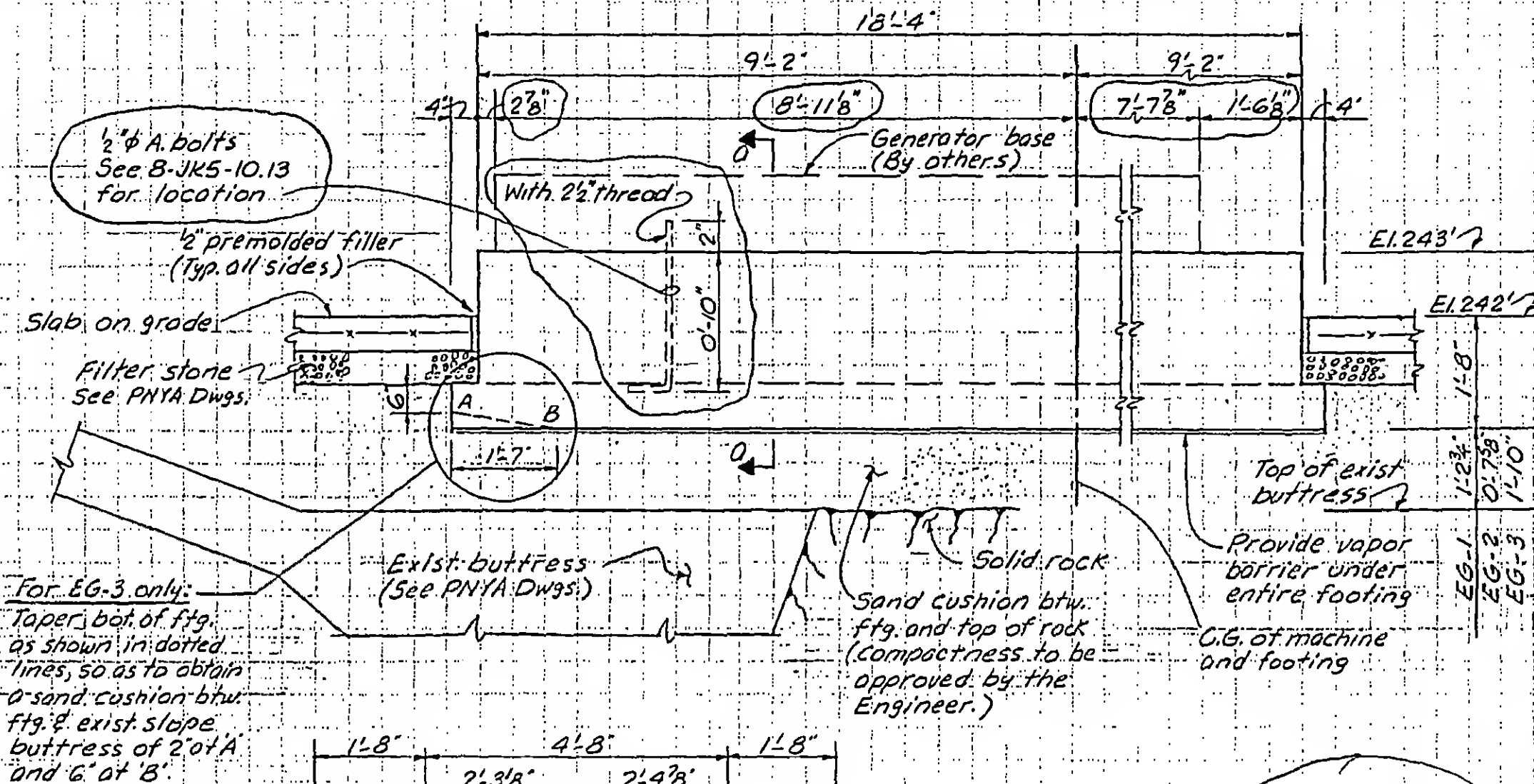
PROJECT THE WORLD TRADE CENTER

TITLE FOUNDATION UNDER EMERGENCY GENERATOR EG-1, EG-2, EG-3

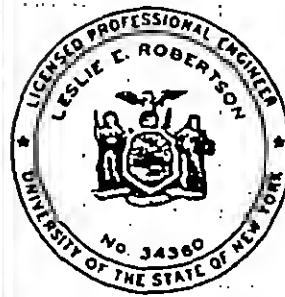
DATE 3-5-71

REVISIONS

4-22-71



Section A-A

DESIGNED
E. L.DRAWN
A. FRANQUIREVIEWED
E. L.

8-JK5-10.7

SKILLING, HELLE, CHRISTIANSEN ROBERTSON

Structural & Civil Engineers

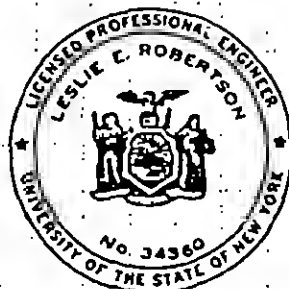
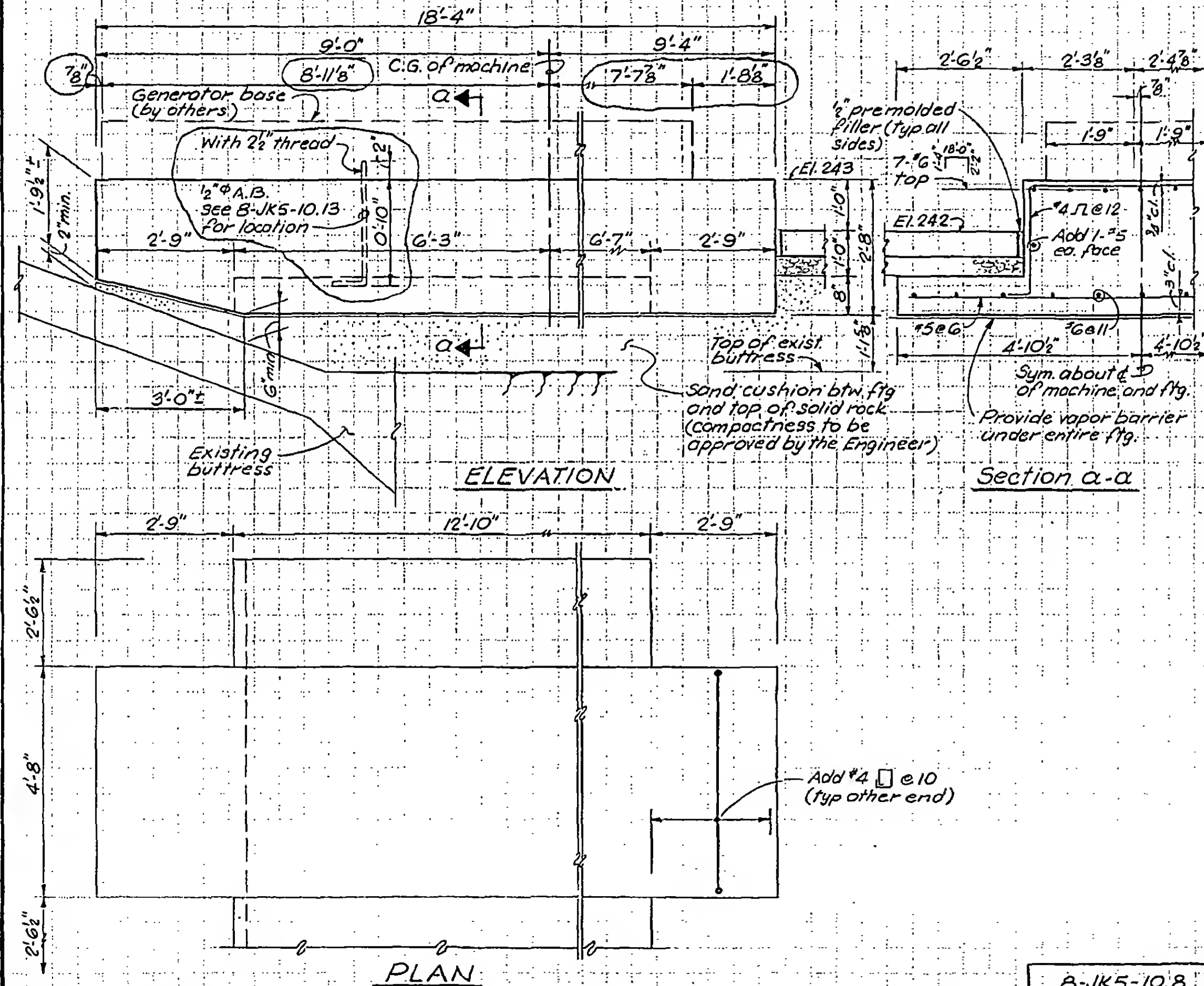
PROJECT THE WORLD TRADE CENTER

TITLE FOUNDATION UNDER EMERGENCY GENERATOR EG-4

DATE 3-5-71

REVISIONS

4-22-71



DESIGNED

E.L.

DRAWN

S.C.

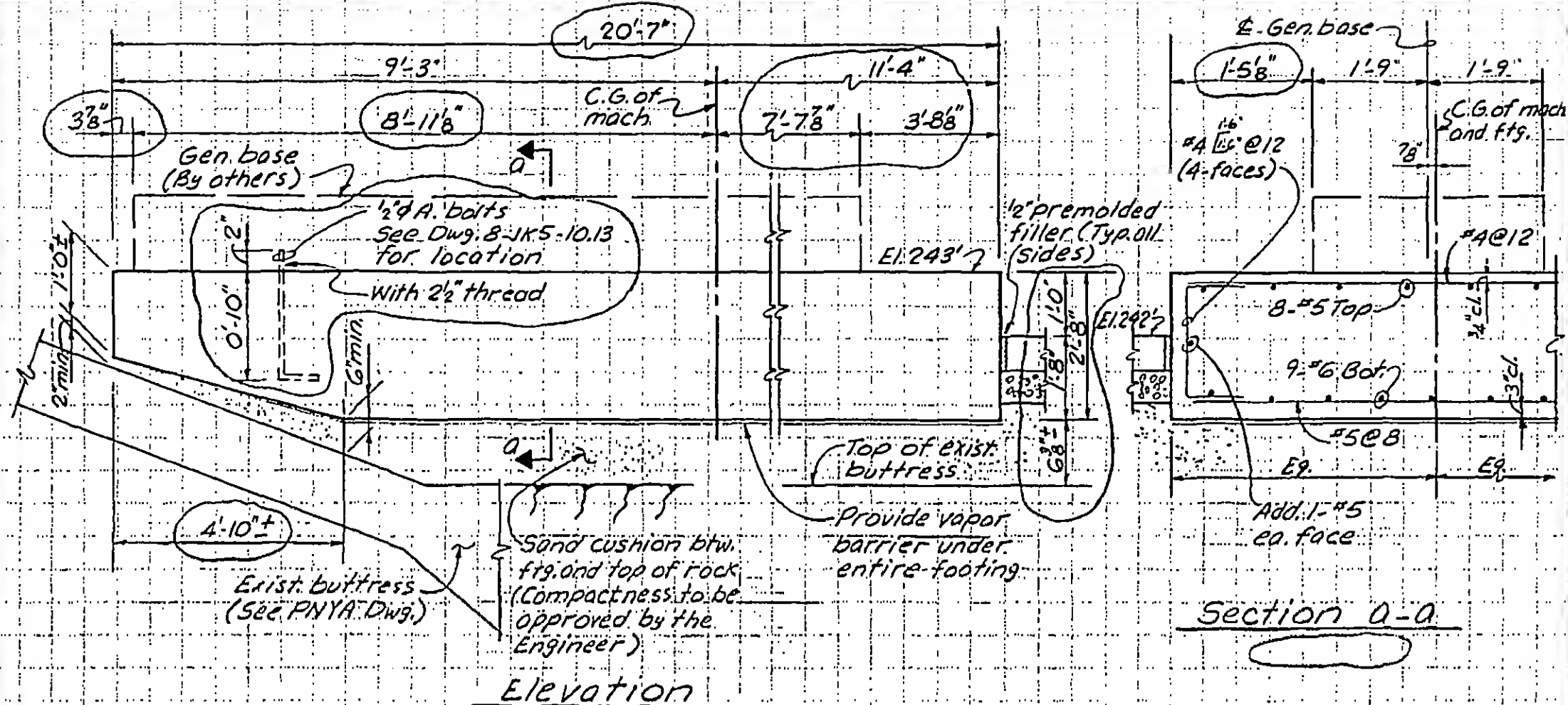
REVIEWED

E.L.

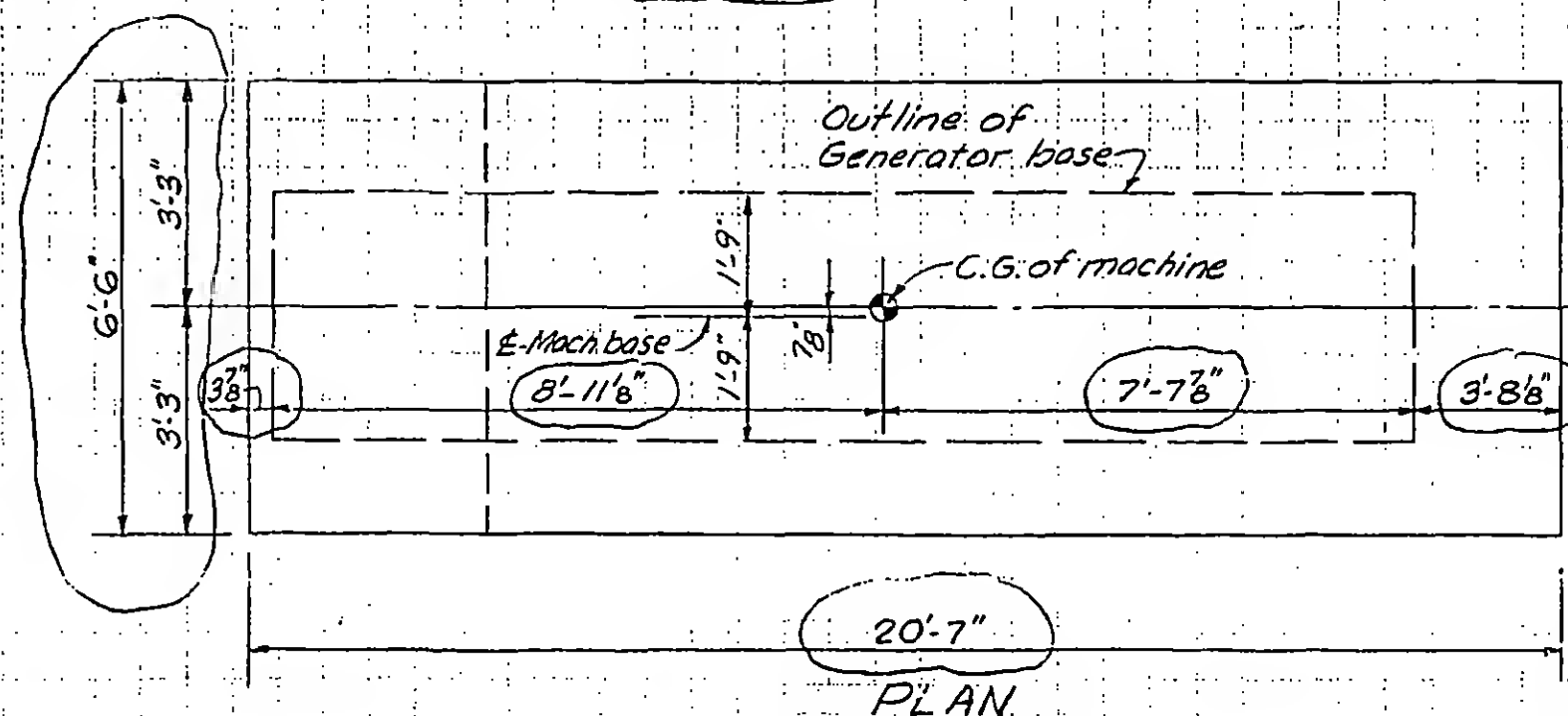
B-JK5-10.8

REVISIONS

4-22-71



Elevation



PLAN



DESIGNED
: E. L.

DRAWN
A. FRANQUI

REVIEWED
E. L.

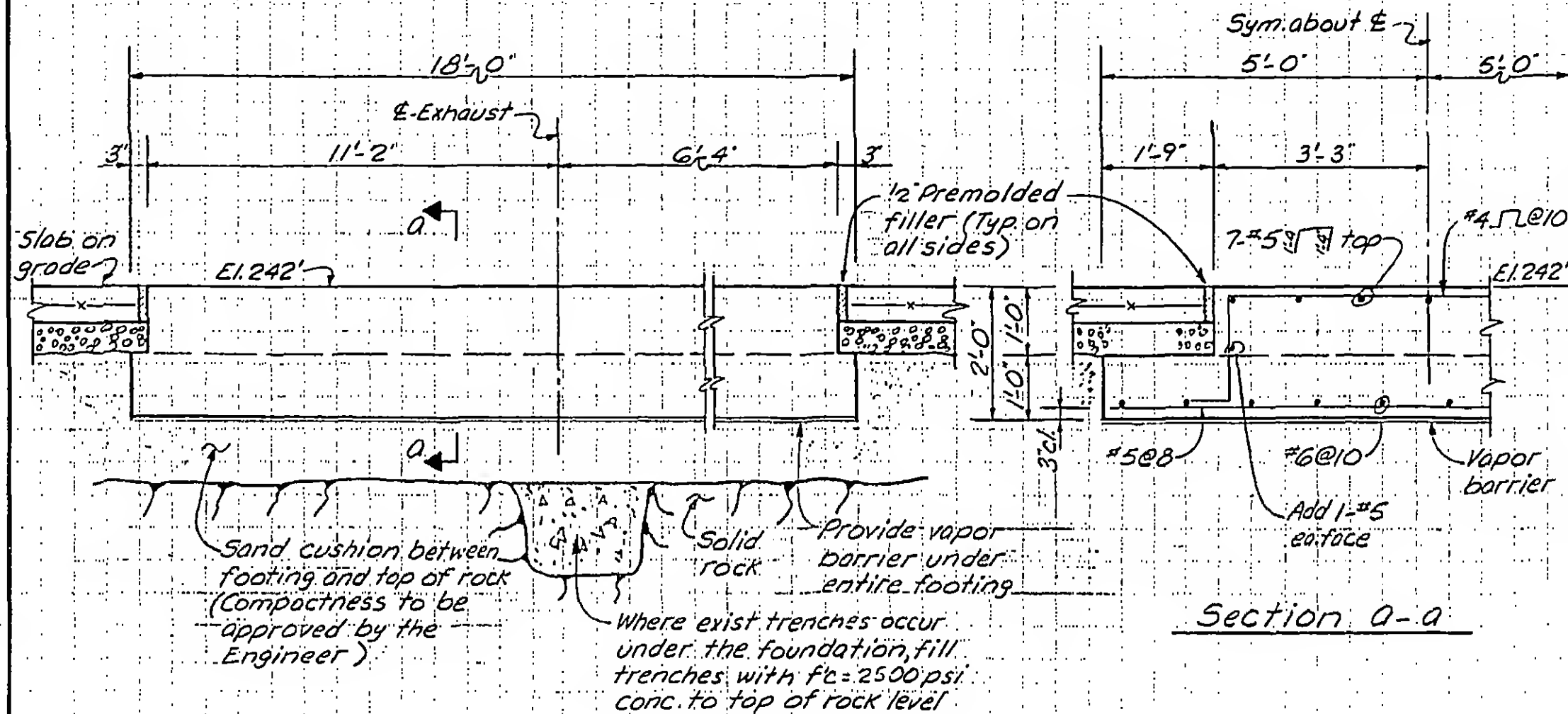
8-JK5-10.9

PROJECT THE WORLD TRADE CENTER

TITLE FOUNDATION UNDER TEL CO GENERATORS DG-1, DG-3, DG-4 & DG-5

DATE 4-1-71

REVISIONS



Notes:

1. Foundation layouts are based on POPE, EVANS & ROBBINS Dwg. M-101 (8-1-70)
2. Pads for Diesel-Generators are based on WHITE MOTOR CORP MACHINE as shown on POPE, EVANS & ROBBINS Dwg. SK-383-S1 (Rev. date 12-10-69)
3. No anchor bolts are required.

DESIGNED
E. LIUDRAWN
A. FRANQUI

REVIEWED

B-JK5-10.10

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

Structural & Civil Engineers

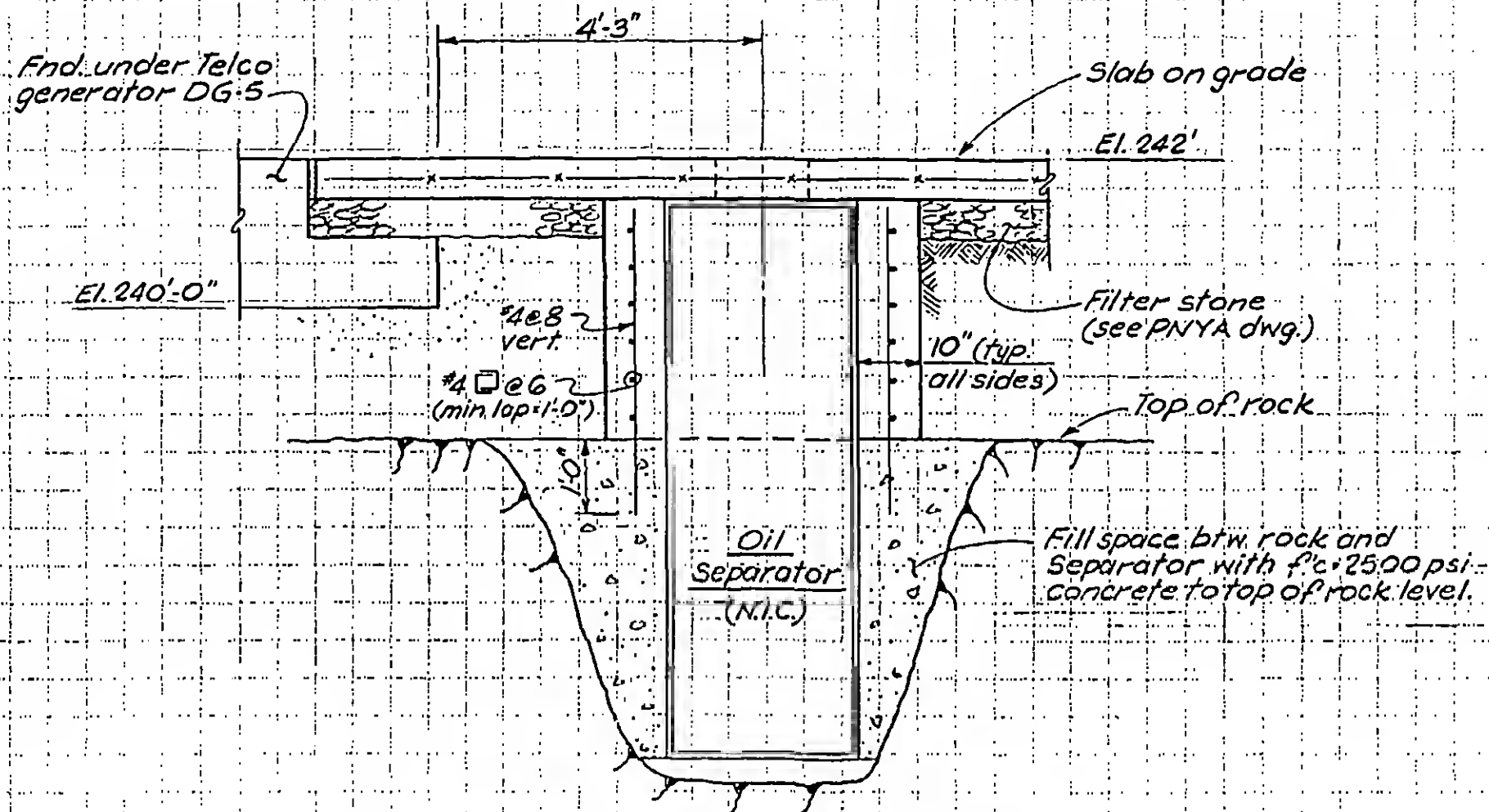
PROJECT THE WORLD TRADE CENTER

TITLE DETAIL OF CONC. PROTECTION AROUND OIL SEPARATOR

DATE 4-1-71

REVISIONS

(ZONE K-1)



DESIGNED
EL.

DRAWN
S.C.

REVIEWED

8-JK5-10.12

SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

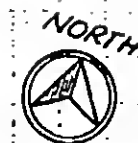
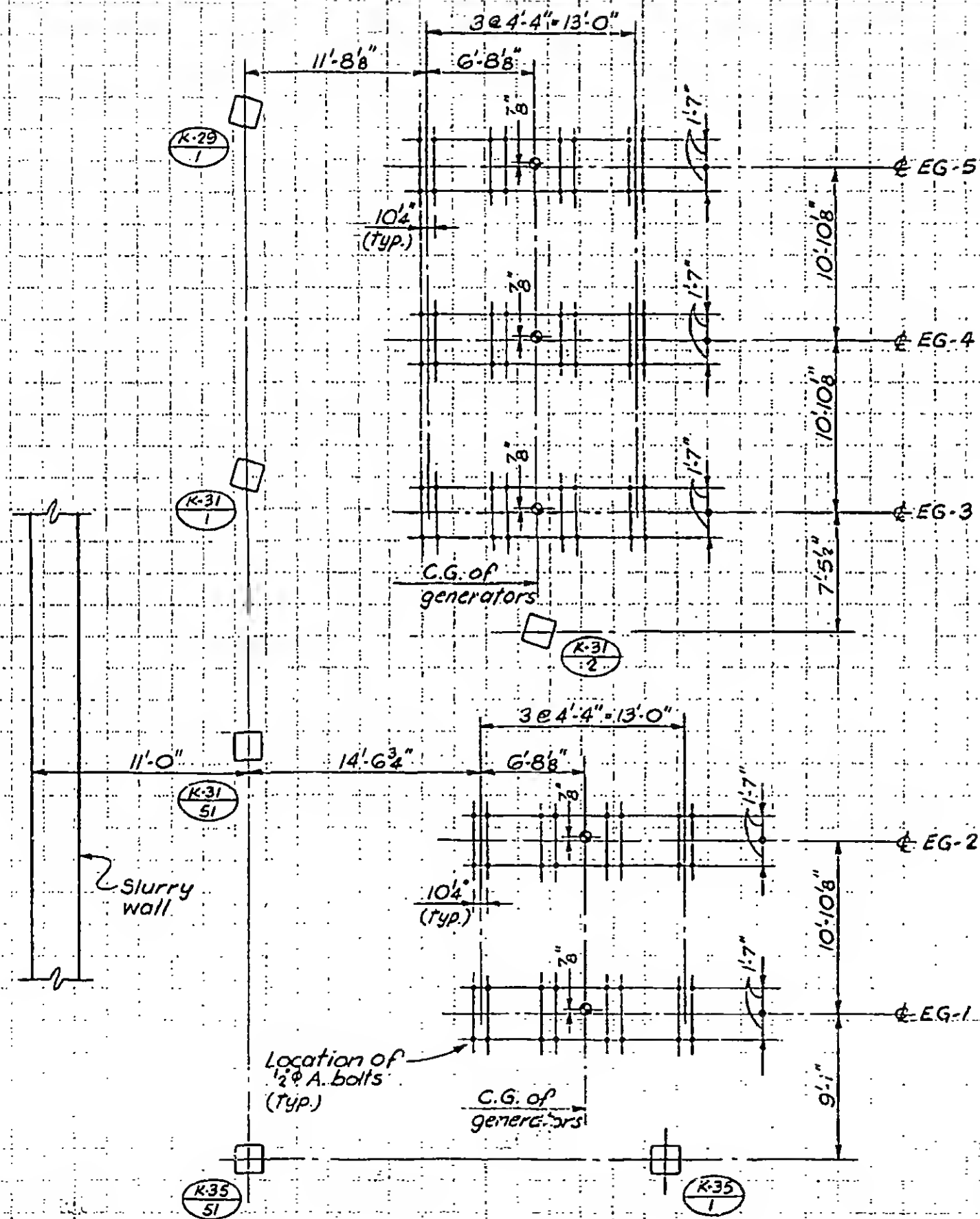
Structural & Civil Engineers

PROJECT THE WORLD TRADE CENTER

TITLE LOCATION OF A. BOLTS FOR EMERGENCY GEN. EG-1 THRU EG-5

DATE 4-22-71

REVISIONS

DESIGNED
E.L.DRAWN
S.C.REVIEWED
E.L.

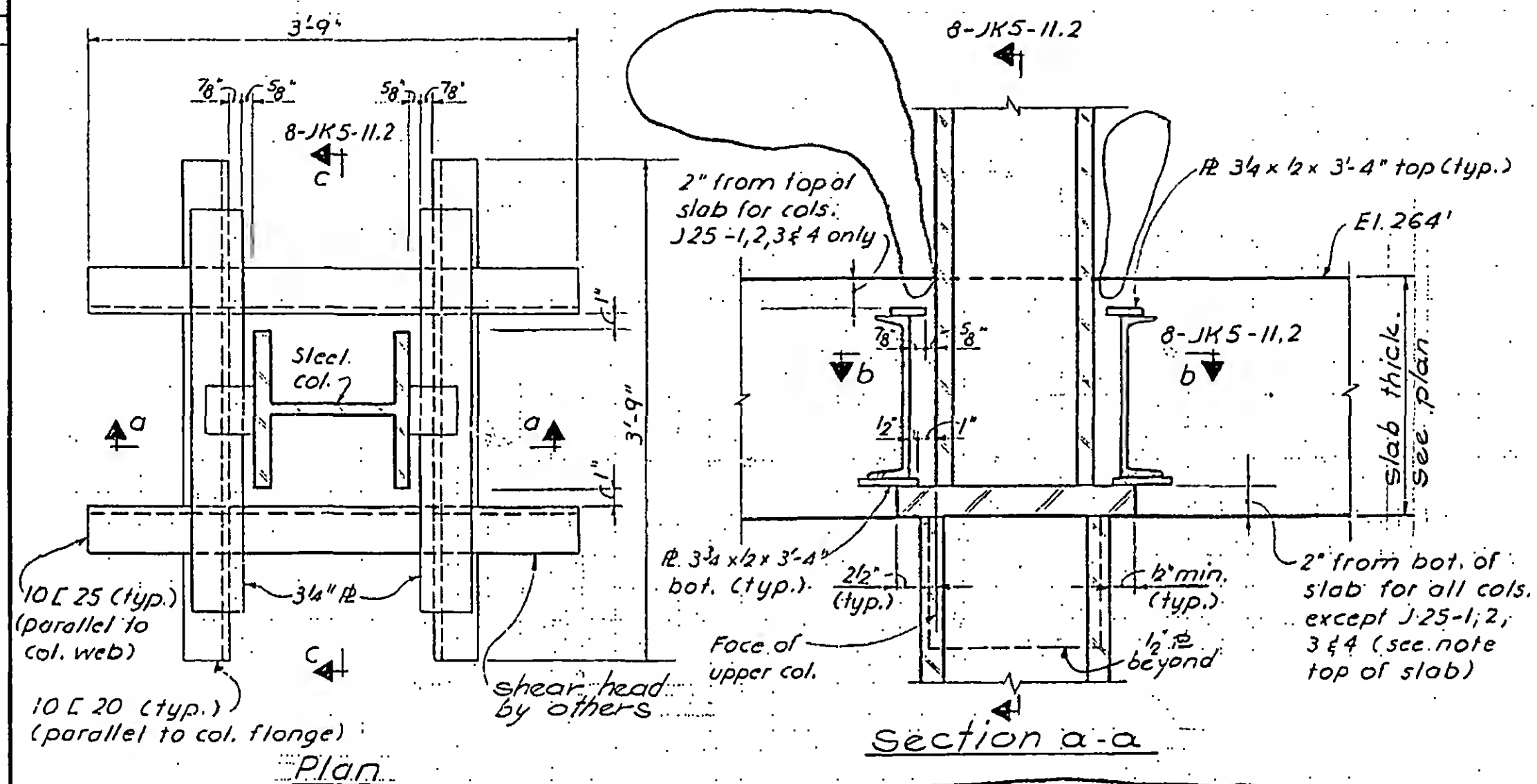
8-JK5-10.13

Structural & Civil Engineers

PROJECT	THE WORLD TRADE CENTER	TITLE	TYPICAL COLUMN SHEAR-HEAD DETAIL @ EL 264'	DATE	5-1-68
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REVISIONS

1-22-69



Drawn

G.S.

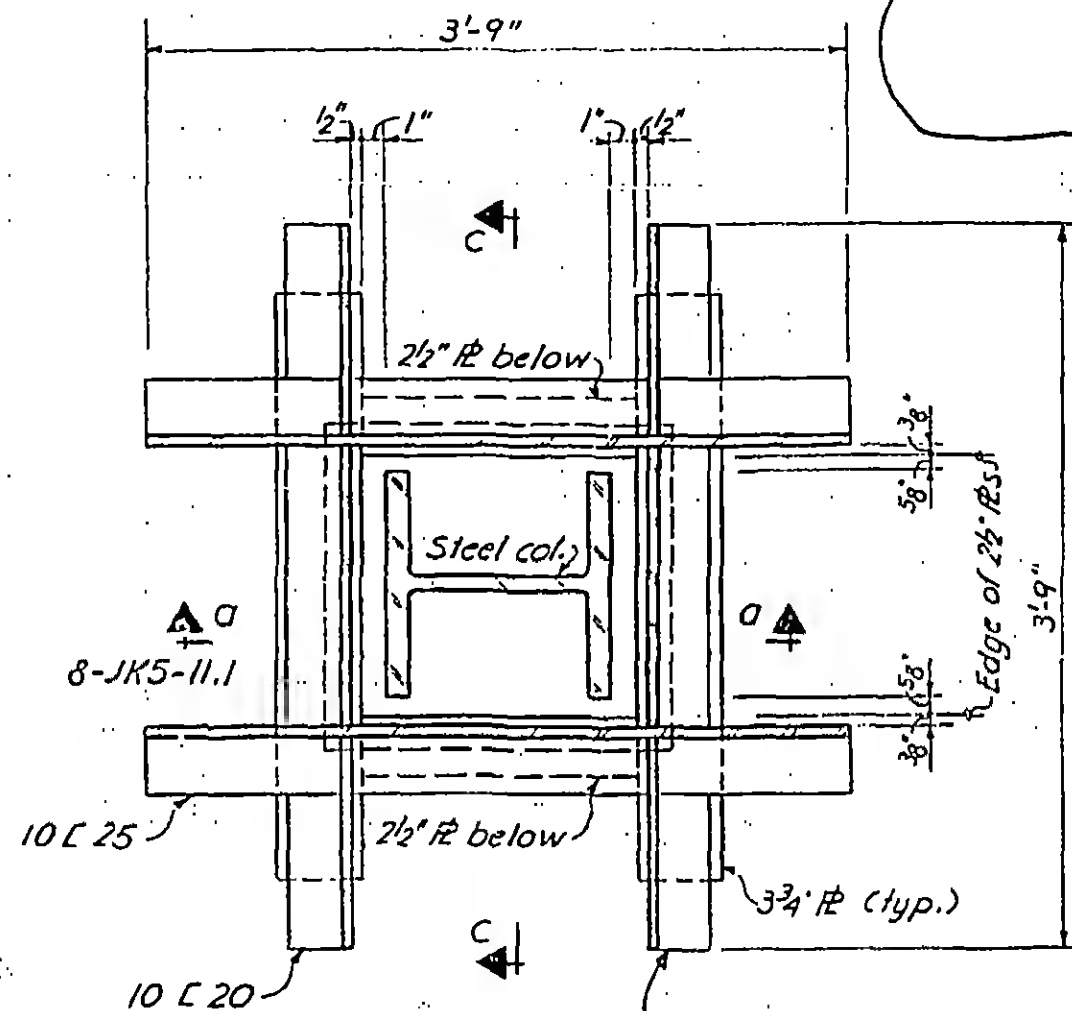
Reviewed

E.L.

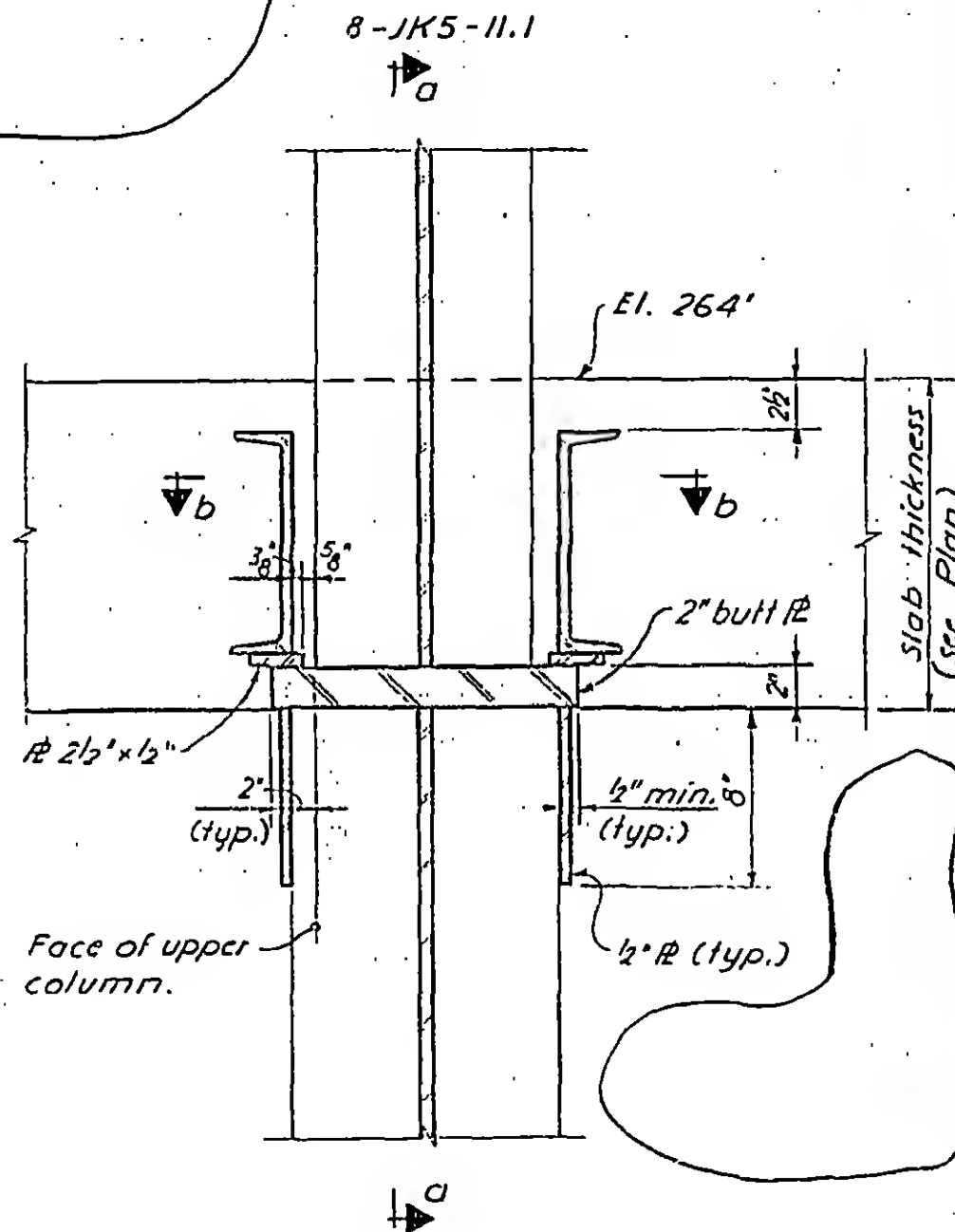
Q-JK5-11.1

REVISIONS

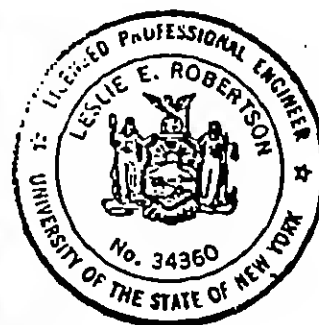
1-22-69



Section b-b



Section c-c



DRAWN
S.C.

REVIEWED
E.L.

8-JK5-11.2

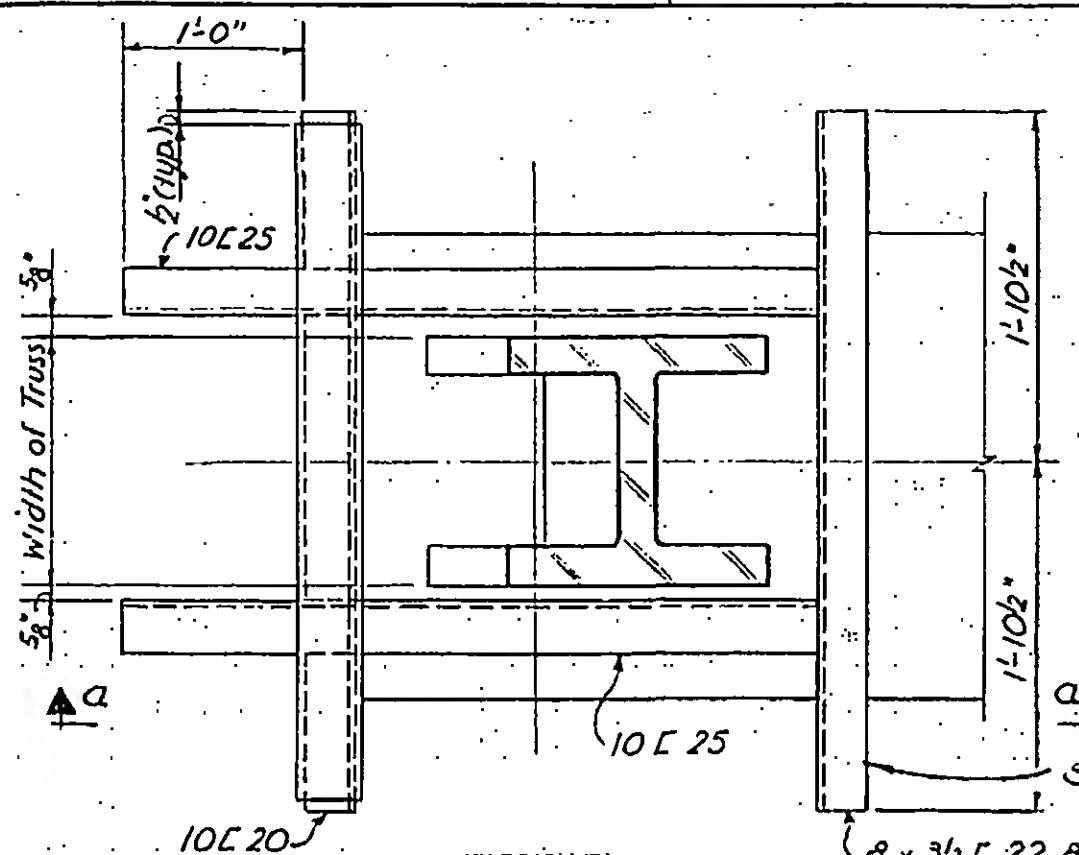
PROJECT: THE WORLD TRADE CENTER.

TITLE SHEAR HEAD DETAIL AT TRUSSES @ E1. 264

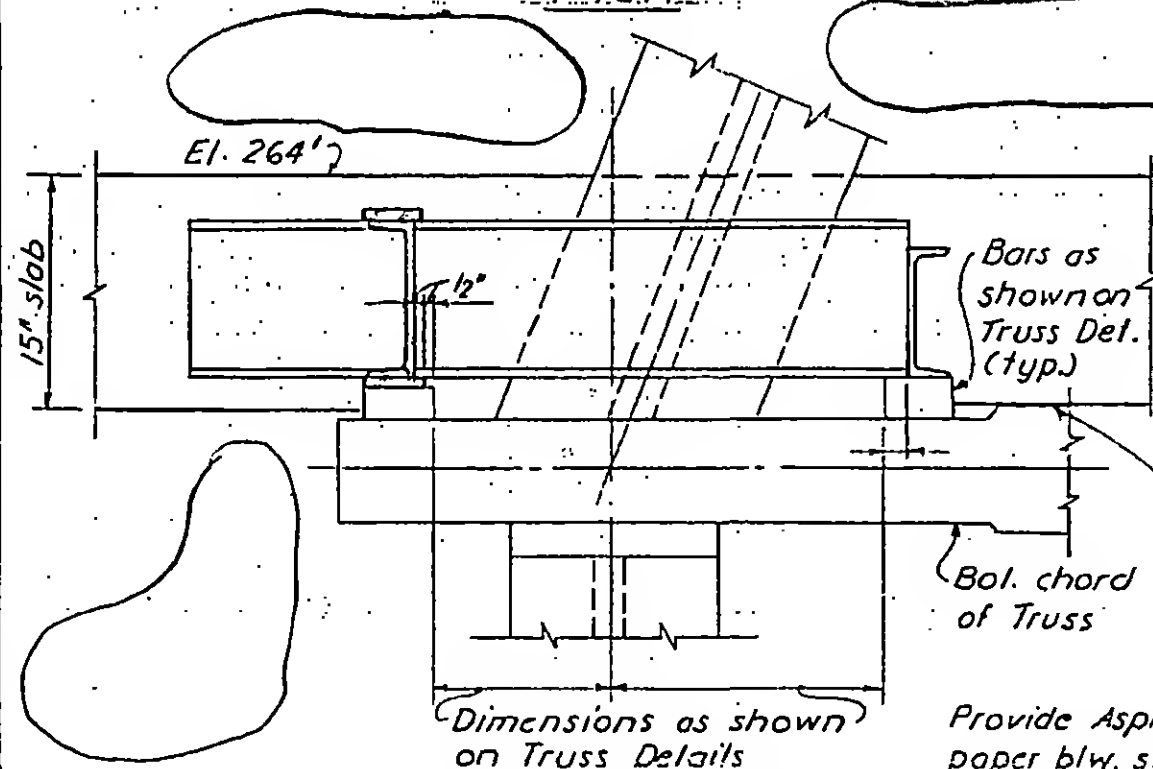
DATE: 5-1-68

REVISIONS

1-22-69

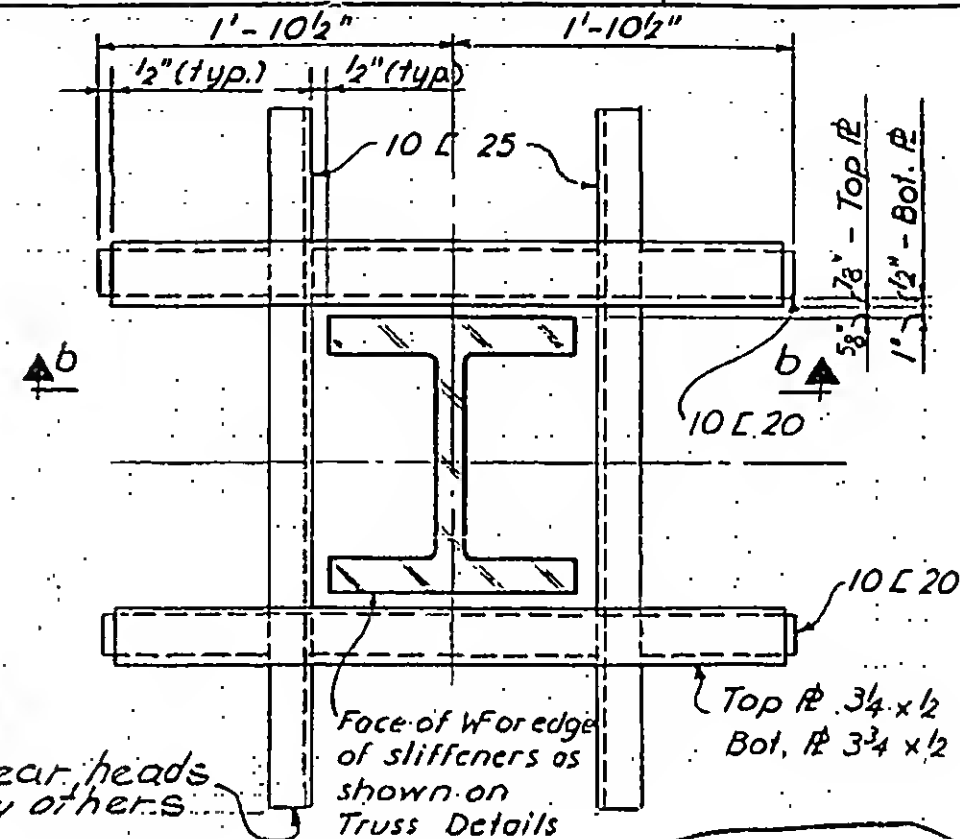


Plan

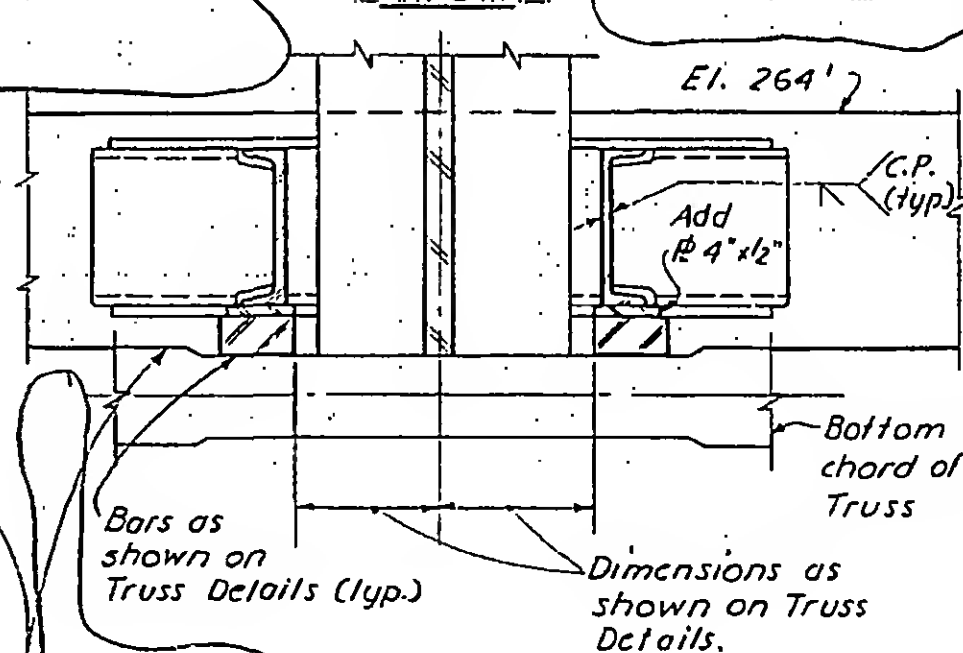


Section a-a

Detail 1



Pian



Section b-b

Detail 2

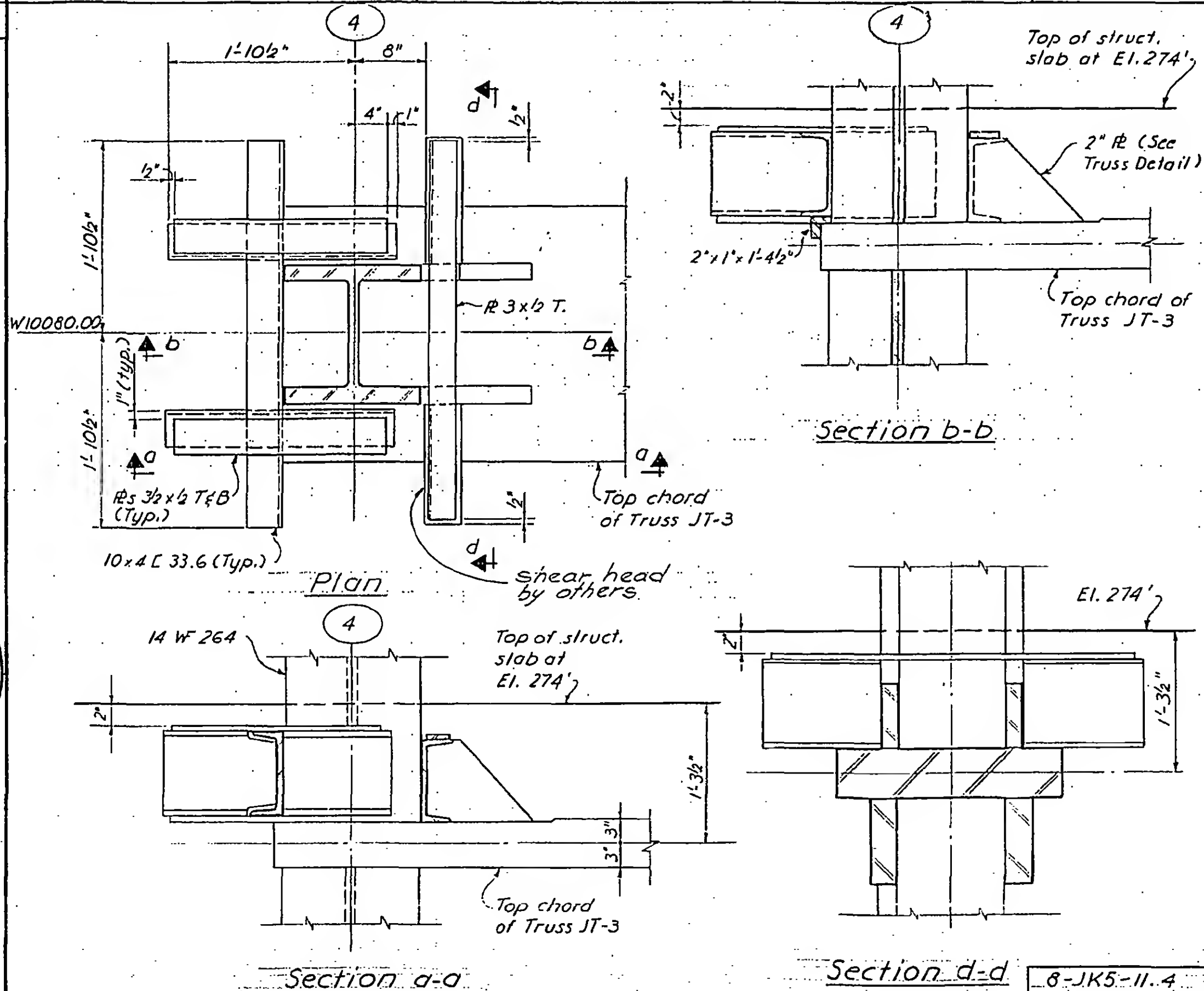


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S.C.

REVIEWED
E.L.

8-JK5-11.3

REVISIONS



SKILLING - HELLE - CHRISTIANSEN - ROBERTSON

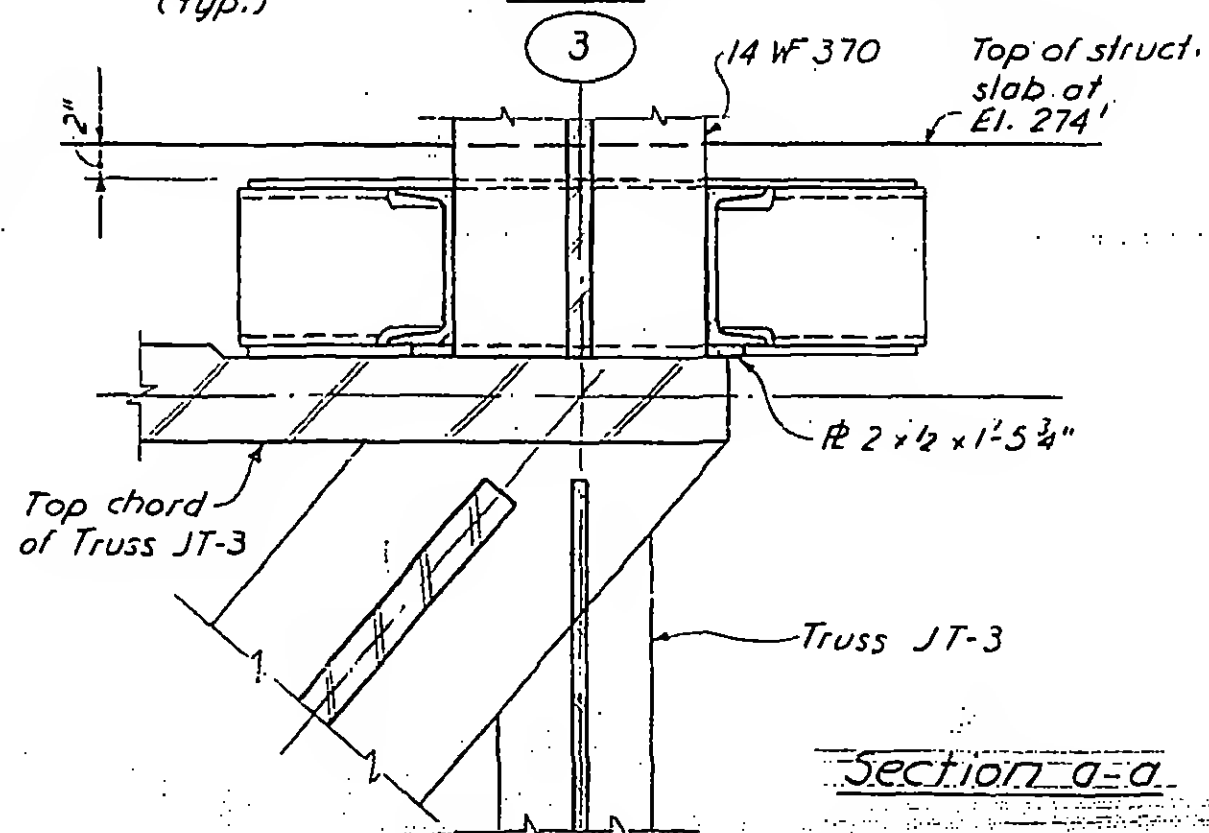
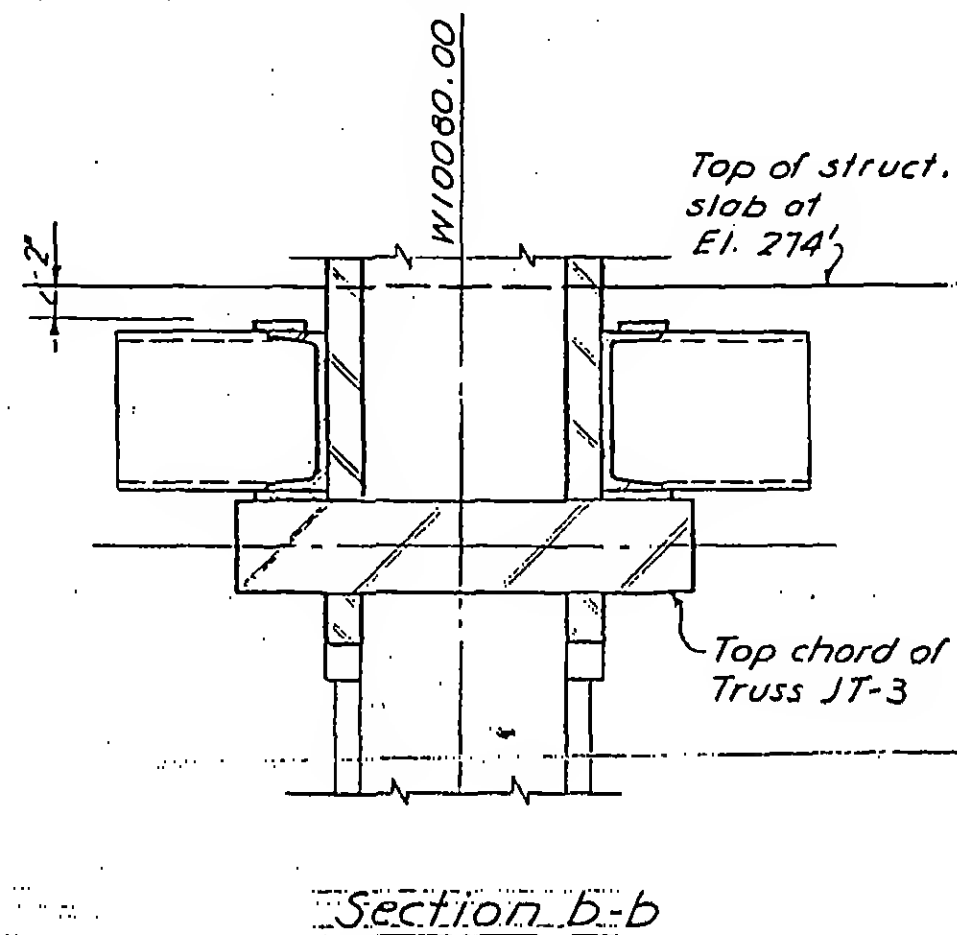
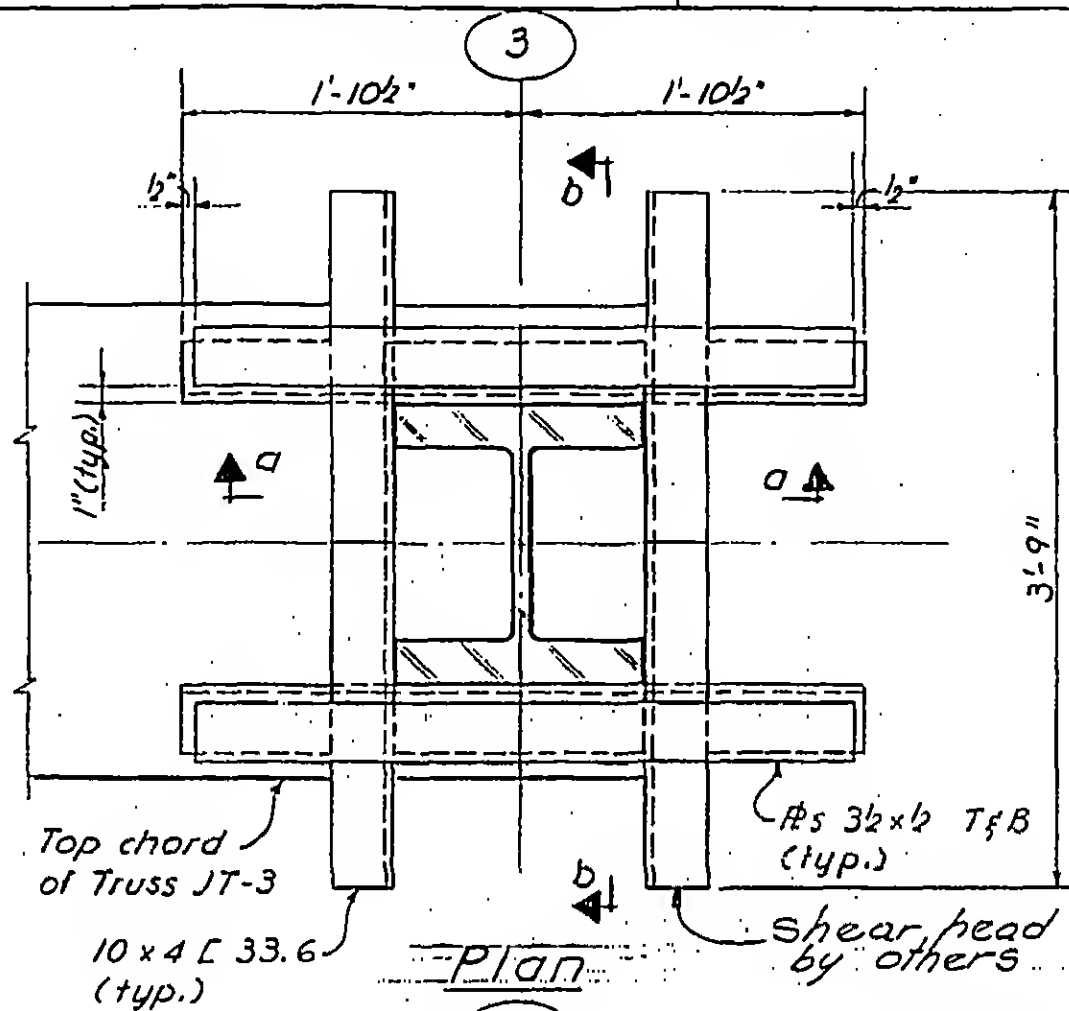
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PROJECT THE WORLD TRADE CENTER

TITLE SHEAR HEAD DETAIL AT TRUSSES

DATE 5-1-68

REVISIONS



8-JK5-11.5

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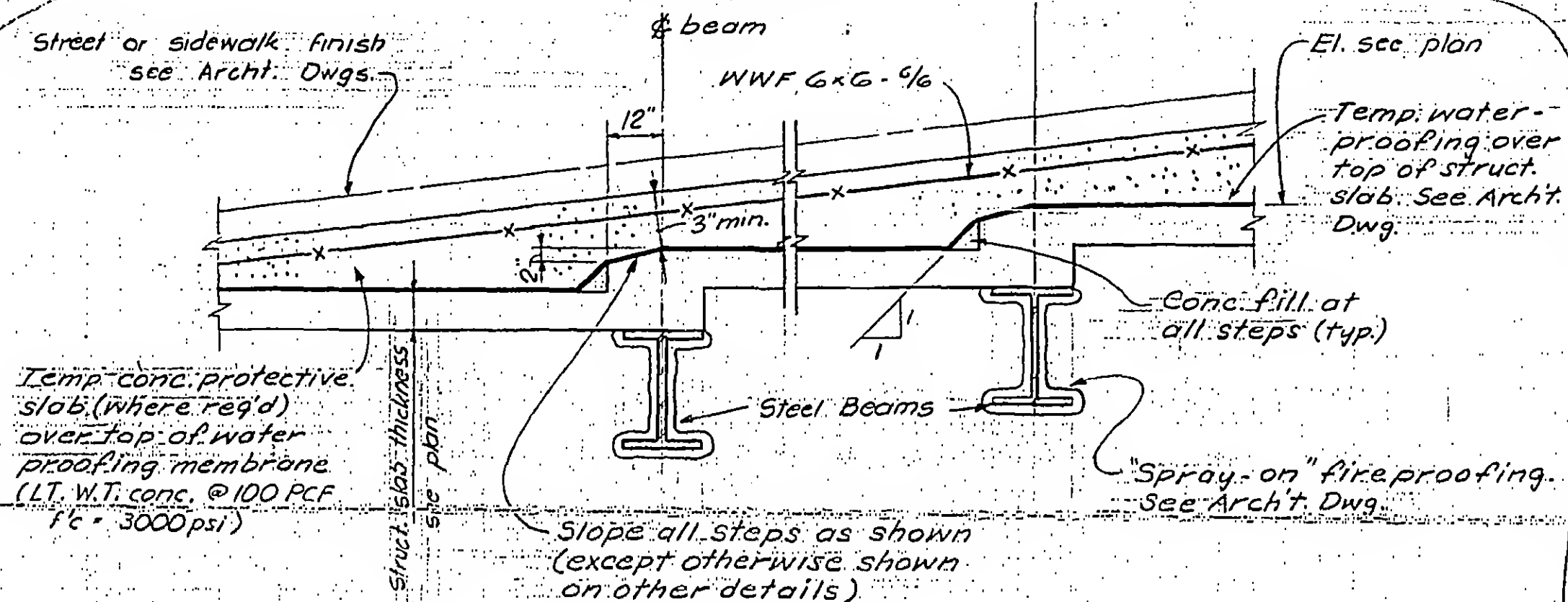
PROJECT THE WORLD TRADE CENTER

TITLE TYPICAL DETAIL OF CONCRETE PROTECTIVE SLAB

DATE 5-1-68

REVISIONS

10-21-68

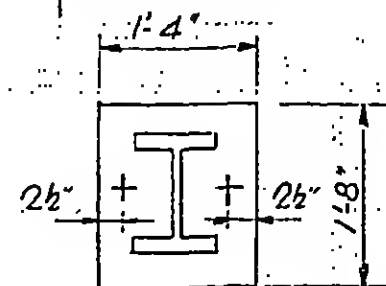
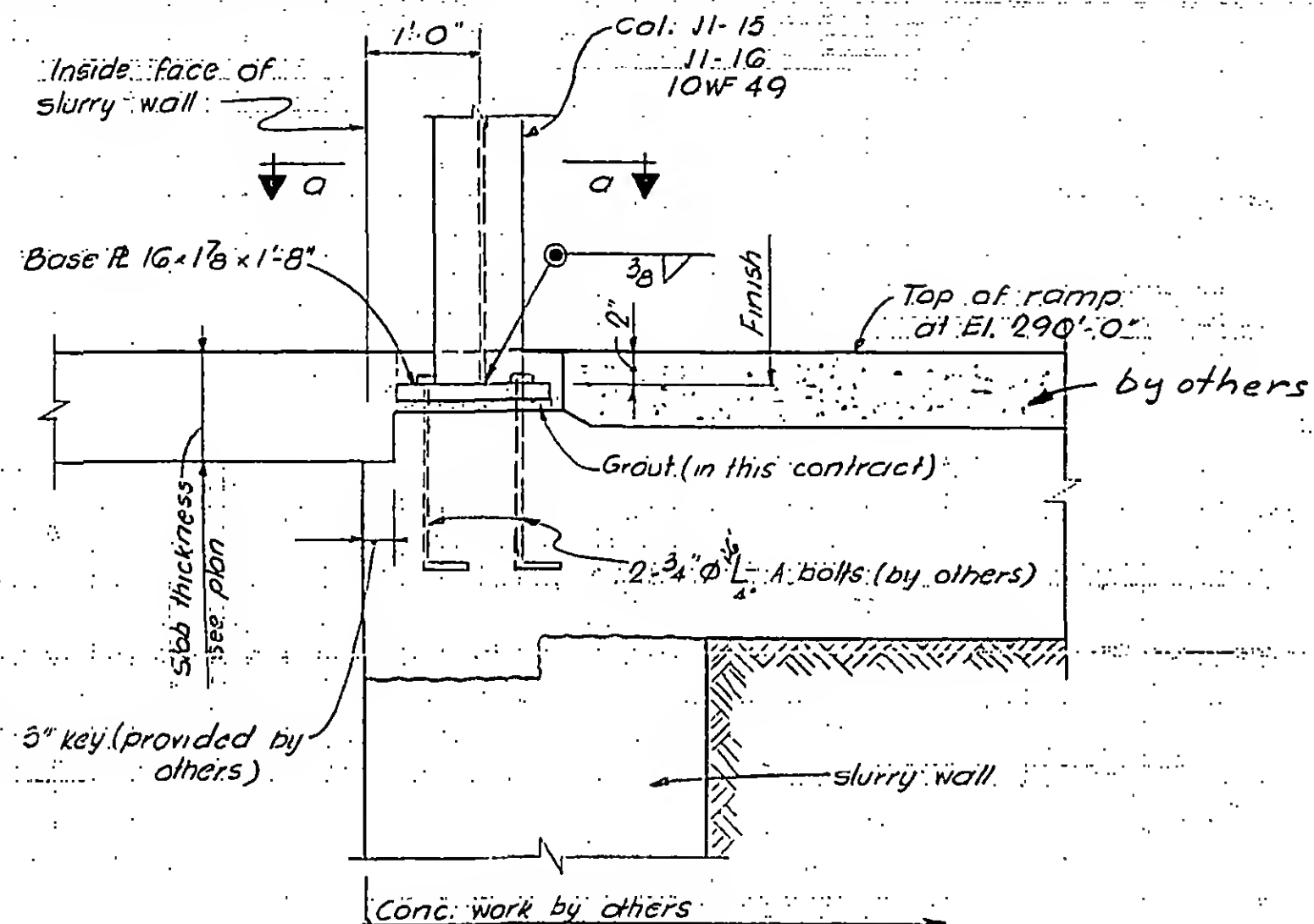
Notes:

1. See sections on 8-JK8-23 & 24 for additional details.
2. See Specification F102 A Fig. 1 for location of temp. conc. protective slab.



8 JK5 12

REVISIONS



Section a-a



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PROJECT THE WORLD TRADE CENTER

TITLE TEMPORARY EXPANSION JOINT - TYPE A

DATE 5-1-68

REVISIONS

12-18-68

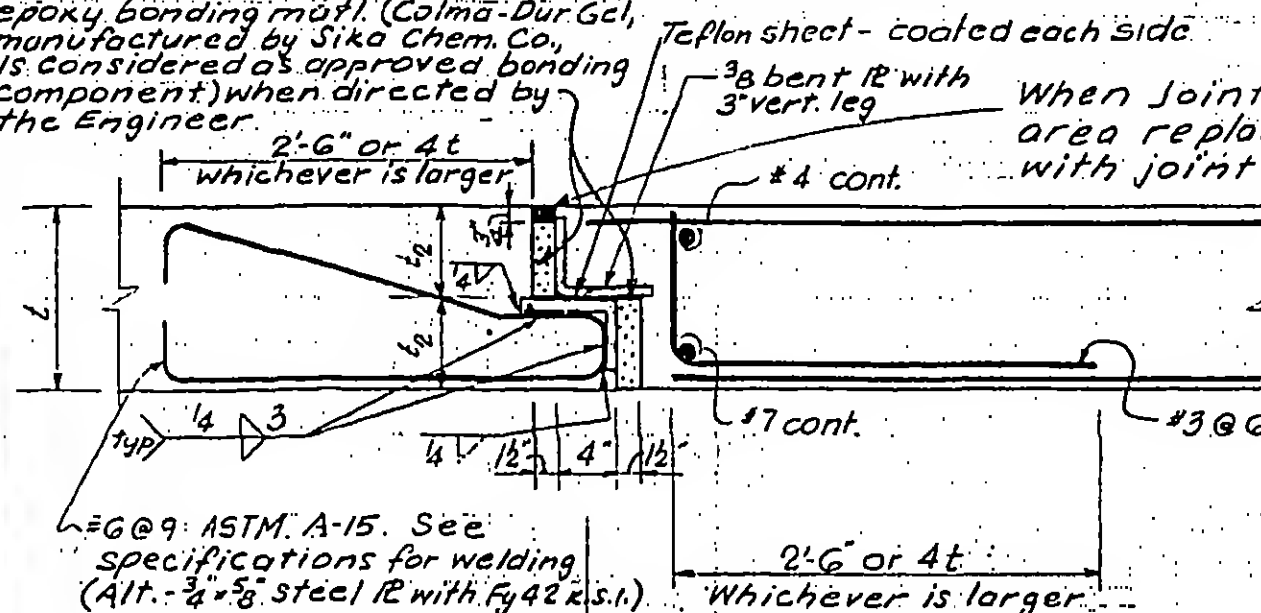
2-27-69

3-25-69

4-2-69

5-21-69

Fill with Two-Component Gelled epoxy bonding matl. (Colma-Dur Gel, manufactured by Sika Chem. Co., is considered as approved bonding component) when directed by the Engineer.

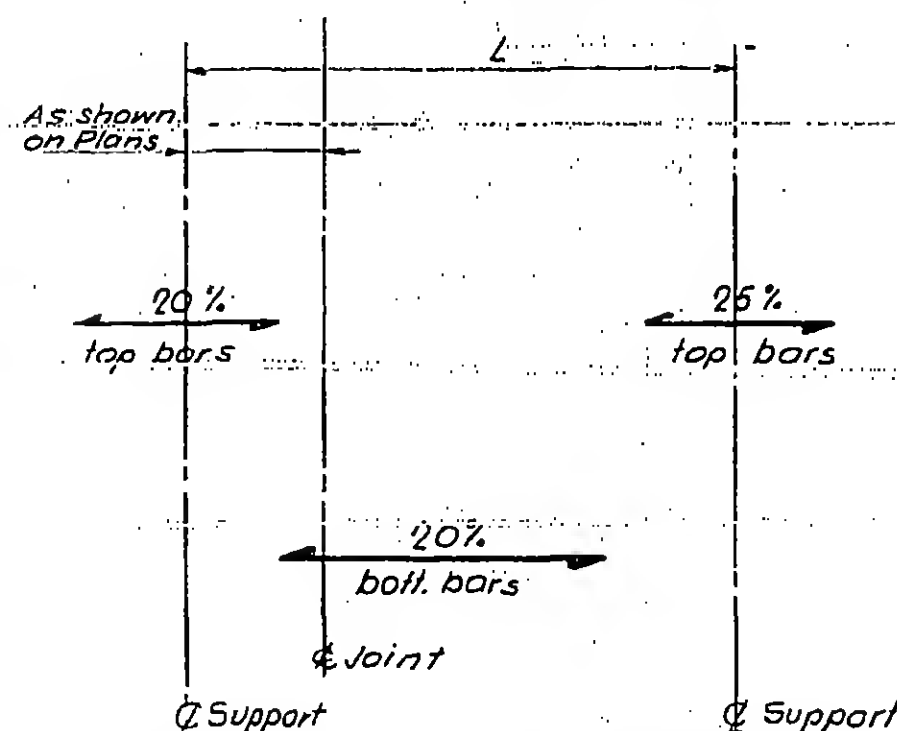


Notes.

1. Joints shall not be closed unless:
 - a) All floors directly above are closed and the temperature control is properly maintained within the range as shown on the Mech. Dwg. SK-M-40 thru 45 (By JBB 8-23-68).
 - b) As directed by the Engineer.

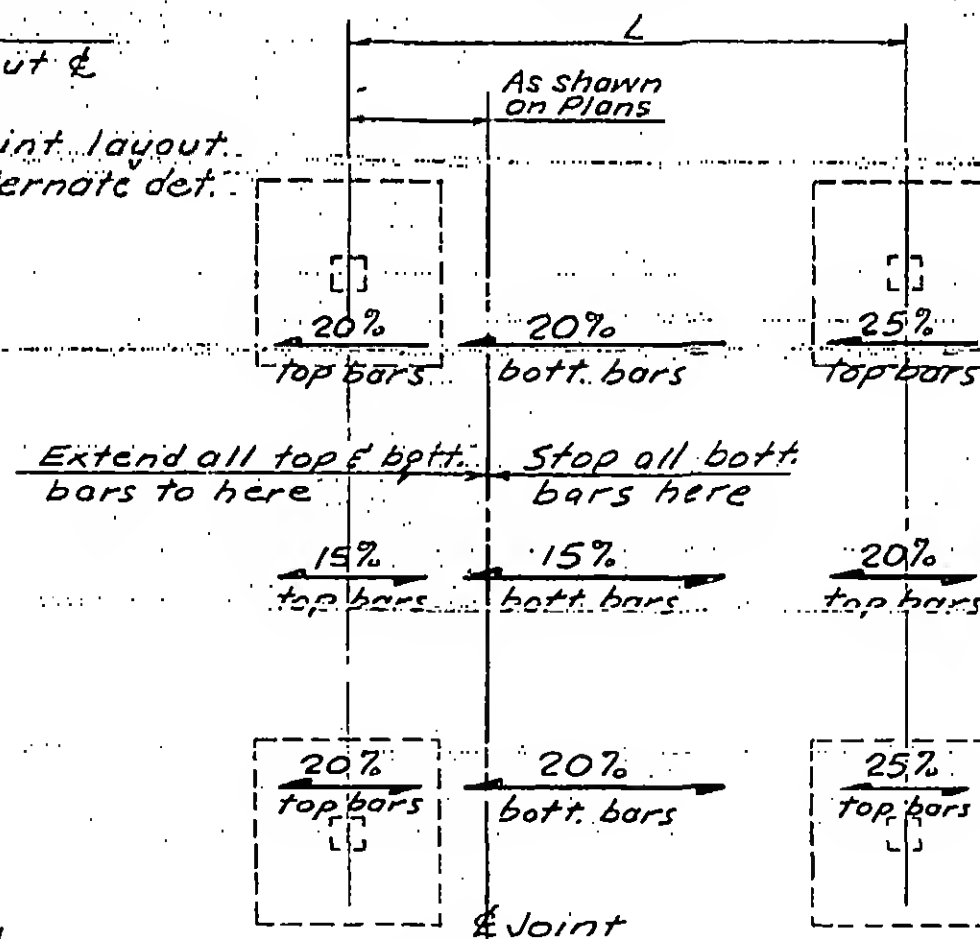
Anchors shown are symmetrical about ϵ .
Reinf. shown is symmetrical about ϵ .

See Plans for Expansion Joint layout.
See 8-JK5-14.4 (thru 14.6) for alternate det.



Note: Provide in all locations where directed by the engineer

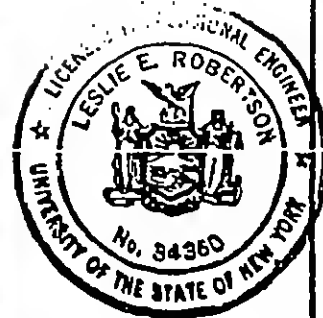
TYPICAL ADDED REINFORCING
AT ONE-WAY SLABS



Note: Provide in all locations where directed by the engineer

TYPICAL ADDED REINFORCING
AT FLAT SLABS

8-JK5-14.1

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S.C.REVIEWED
J.M.F.

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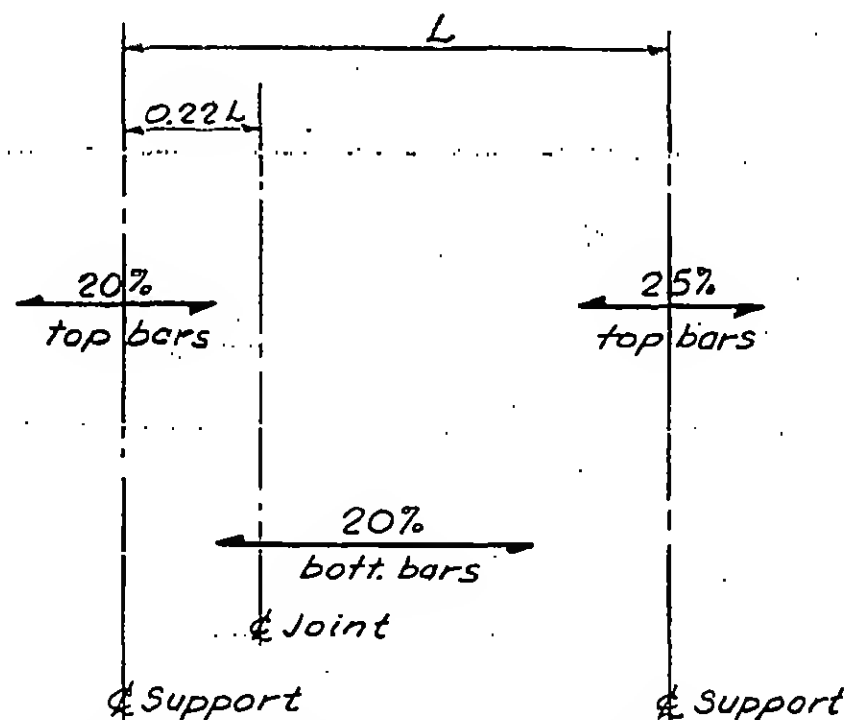
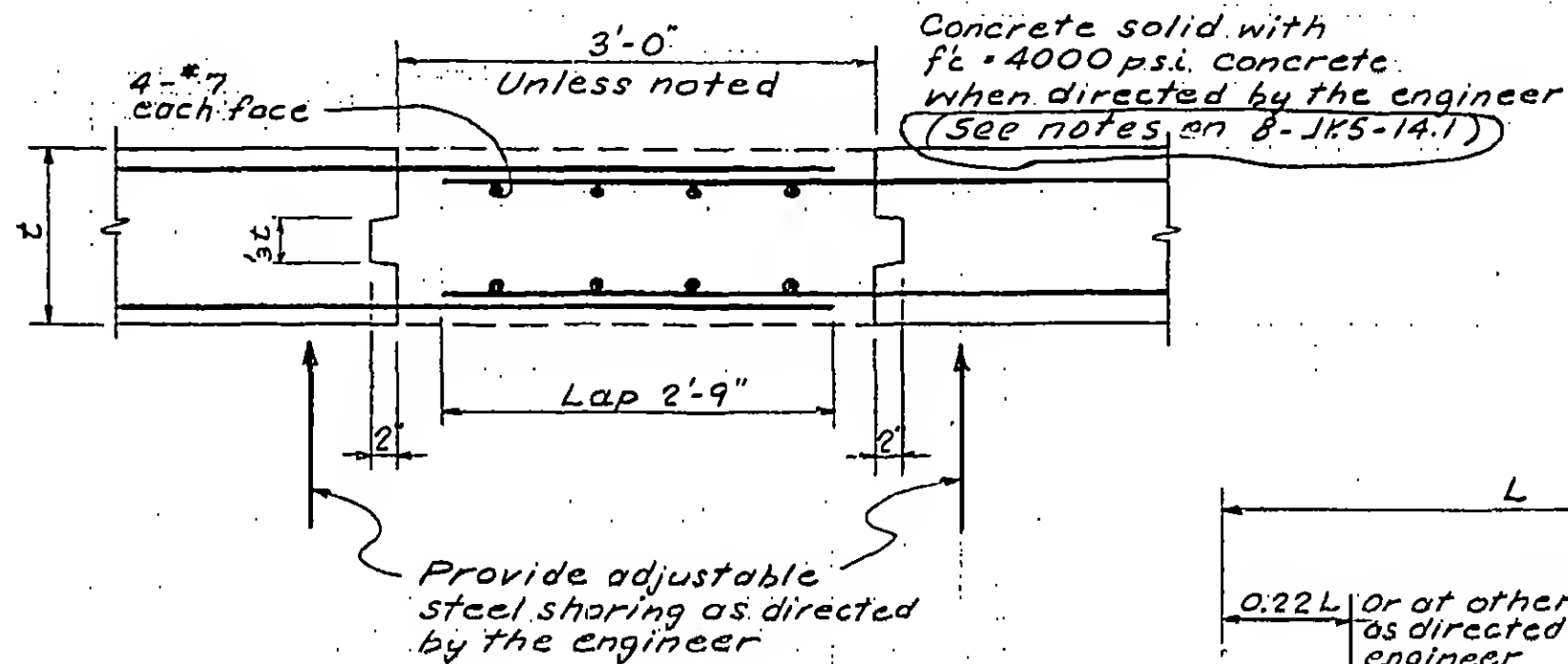
PROJECT THE WORLD TRADE CENTER

TITLE TEMPORARY EXPANSION JOINT - TYPE B

DATE 5-1-68

REVISIONS

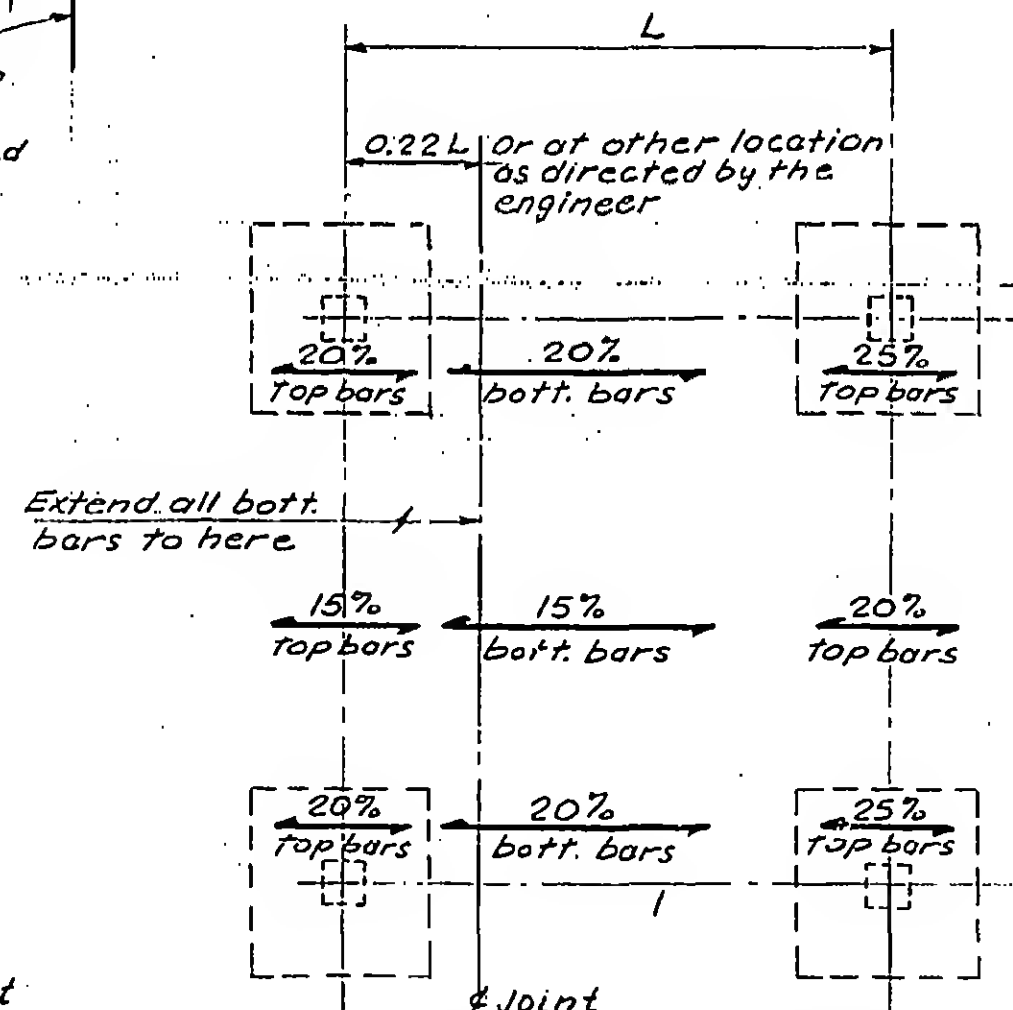
2-27-69



Note: Provide in all locations where directed by the engineer.

TYPICAL ADDED REINFORCING

AT ONE-WAY SLABS



Note: Provide in all locations where directed by the engineer.

TYPICAL ADDED REINFORCING

AT FLAT SLABS



8-JK5-14.2

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PROJECT

THE WORLD TRADE CENTER

TITLE

TEMPORARY CONSTRUCTION JOINT DETAIL

DATE

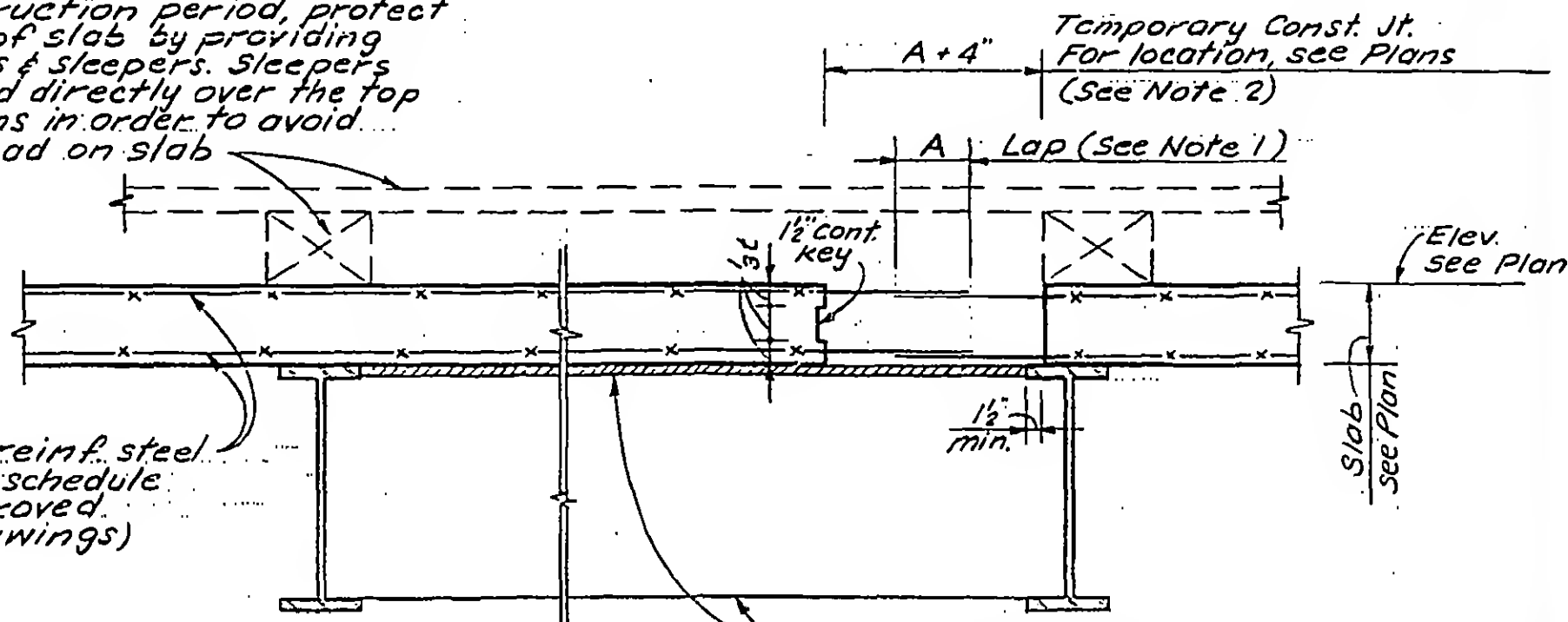
2-27-69

REVISIONS

6-13-69 GEN.
REV.

Where heavy loads are liable to occur during construction period, protect this portion of slab by providing timber planks & sleepers. Sleepers shall be placed directly over the top of steel beams in order to avoid accidental load on slab.

WWF or reinf. steel
(see slab schedule
and approved
shop drawings)



Formwork & the supporting joists between beams shall be left in place (undisturbed) until after pouring concrete to the strip of temporary Const. Jt. as shown

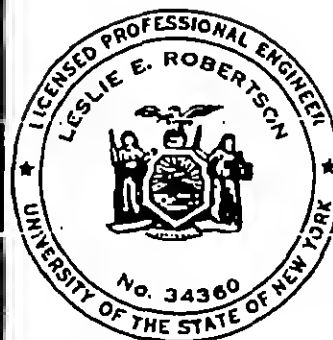
Notes:

1. Provide lap splice for all reinf. to allow temperature movements and the lap shall be:

- a. For WWF, the overlap distance between outermost cross wires of each fabric sheet shall not be less than the spacing of the cross wires plus 2".
- b. For reinf. bars, the lap shall not be less than 36 bar diameters.

2. All joints shall not be closed unless:

- a. All floors directly above have been constructed, enclosure walls built, and the temperature control is properly maintained within the range as shown on Mech. Dwg. SK-M-40 thru 45 (by JBB, 8-23-68)
- b. As directed by the Engineer.



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8-JK5-14.3

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PROJECT THE WORLD TRADE CENTER

TITLE TEMPORARY EXPANSION JOINT-TYPE A (ALTERNATE)

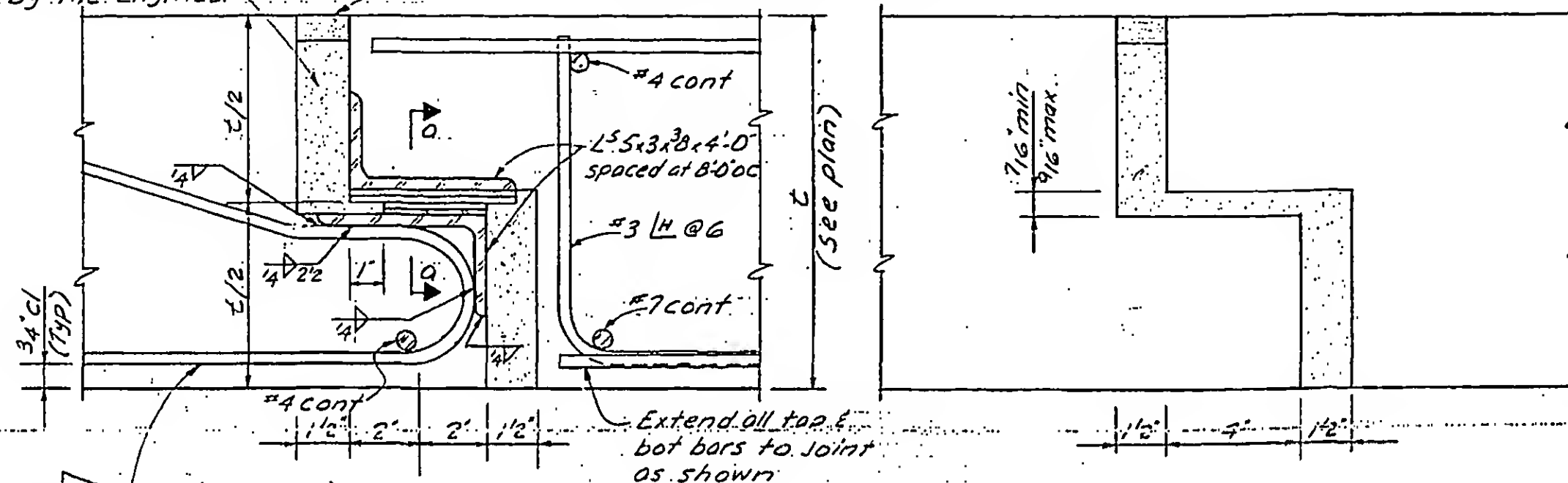
DATE 4-2-69

REVISIONS

4-21-69

Fill with two-component Gelled Epoxy Bonding Material (Colmo-Dor Gel, manufactured by Sika Chem Co is considered as approved bonding component) When directed by the Engineer.

When joint occurs in parking garage area, replace the top 3/4" of Epoxy with joint sealant.



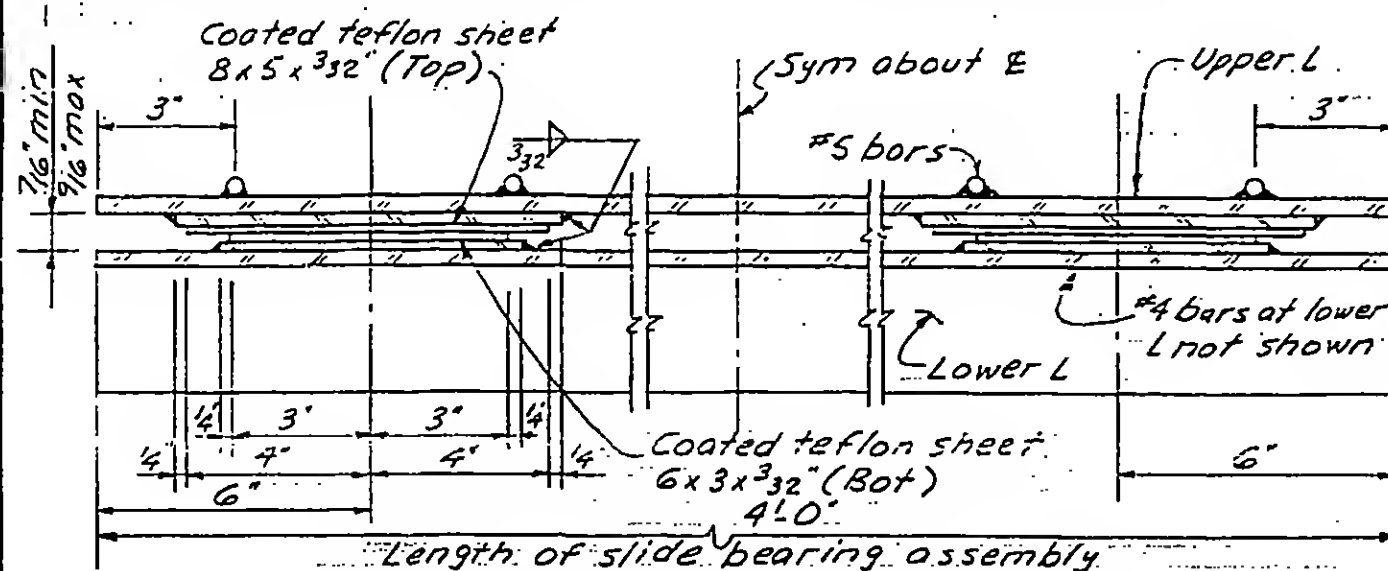
#5 @ 6 (ASTM A-15)

See specification for welding
(Alt 3/4 x 1/2 R with Fy=36)

Anchors shown are
Sym about E

Reinf shown is
Sym about E

SECTION THRU SLIDE BEARING ASSEMBLY

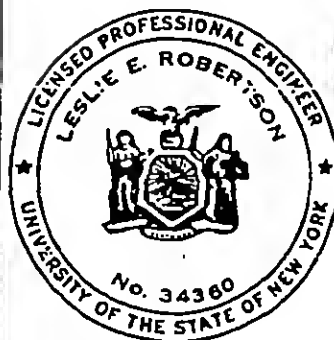


Length of slide bearing assembly

Section A-A

Notes:

1. H = 2'-6" or 4t whichever is larger.
2. See notes and added reinf in slab on 8-JK5-14.1
3. "Slide bearing assembly" sets are spaced at 8'-0" oc along the length of temporary exp jt as shown on plans.



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A.L. FRANQUIREVIEWED
E.L.

8-JK5-14.4

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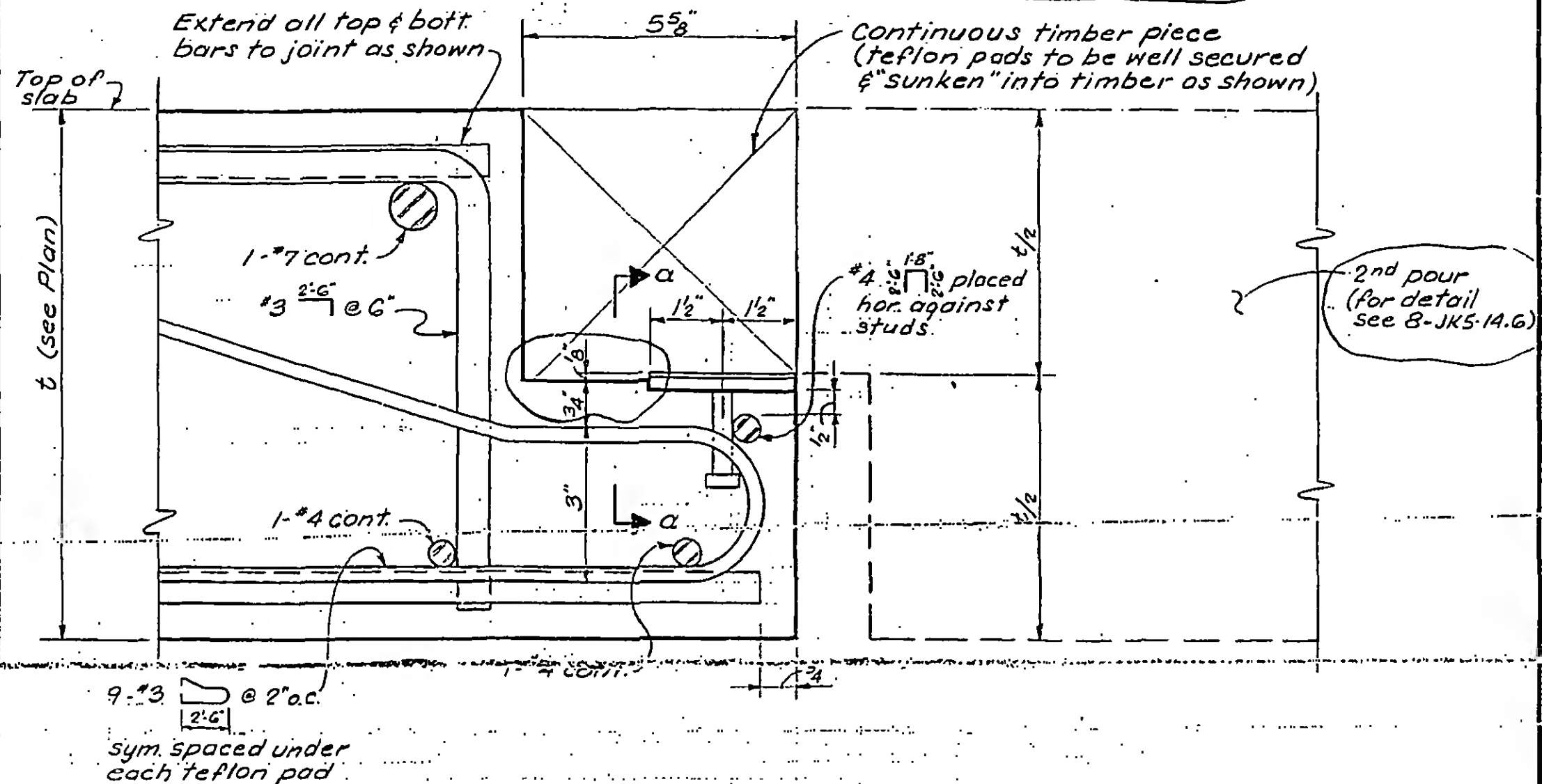
PROJECT THE WORLD TRADE CENTER

TITLE TEMPORARY EXPANSION JOINT DETAIL

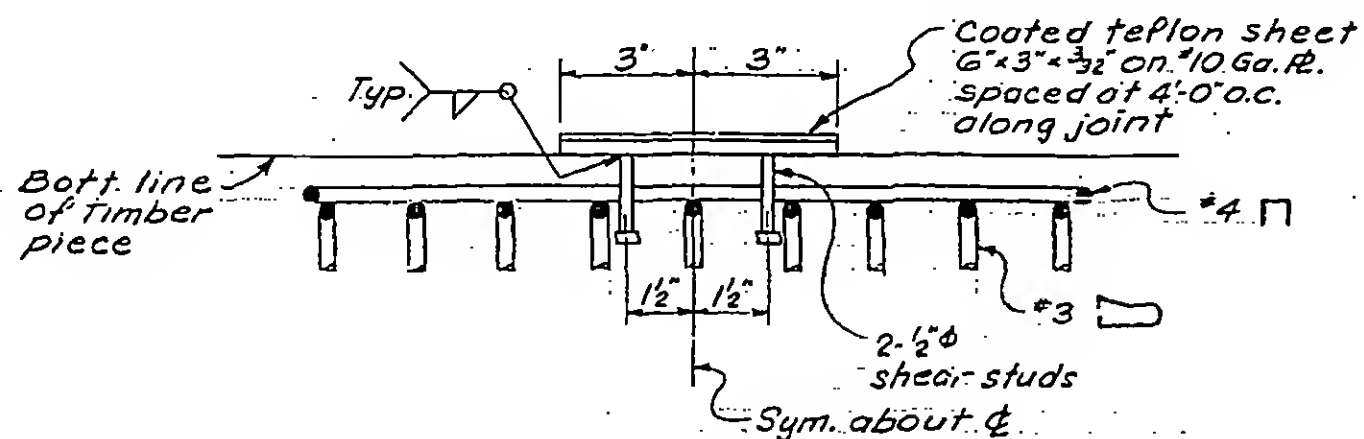
DATE 5-14-69

REVISIONS

5-21-69



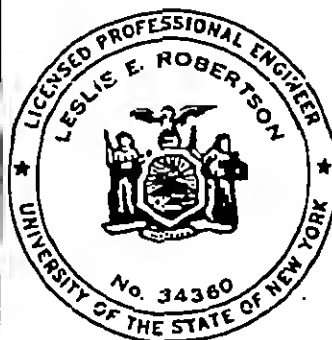
Elevation Of Lower Tongue (1st Pour)



Section a-a

Notes:

1. See notes and added reinf. in slab on 8-JK5-14.1



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8-JK5-14.5

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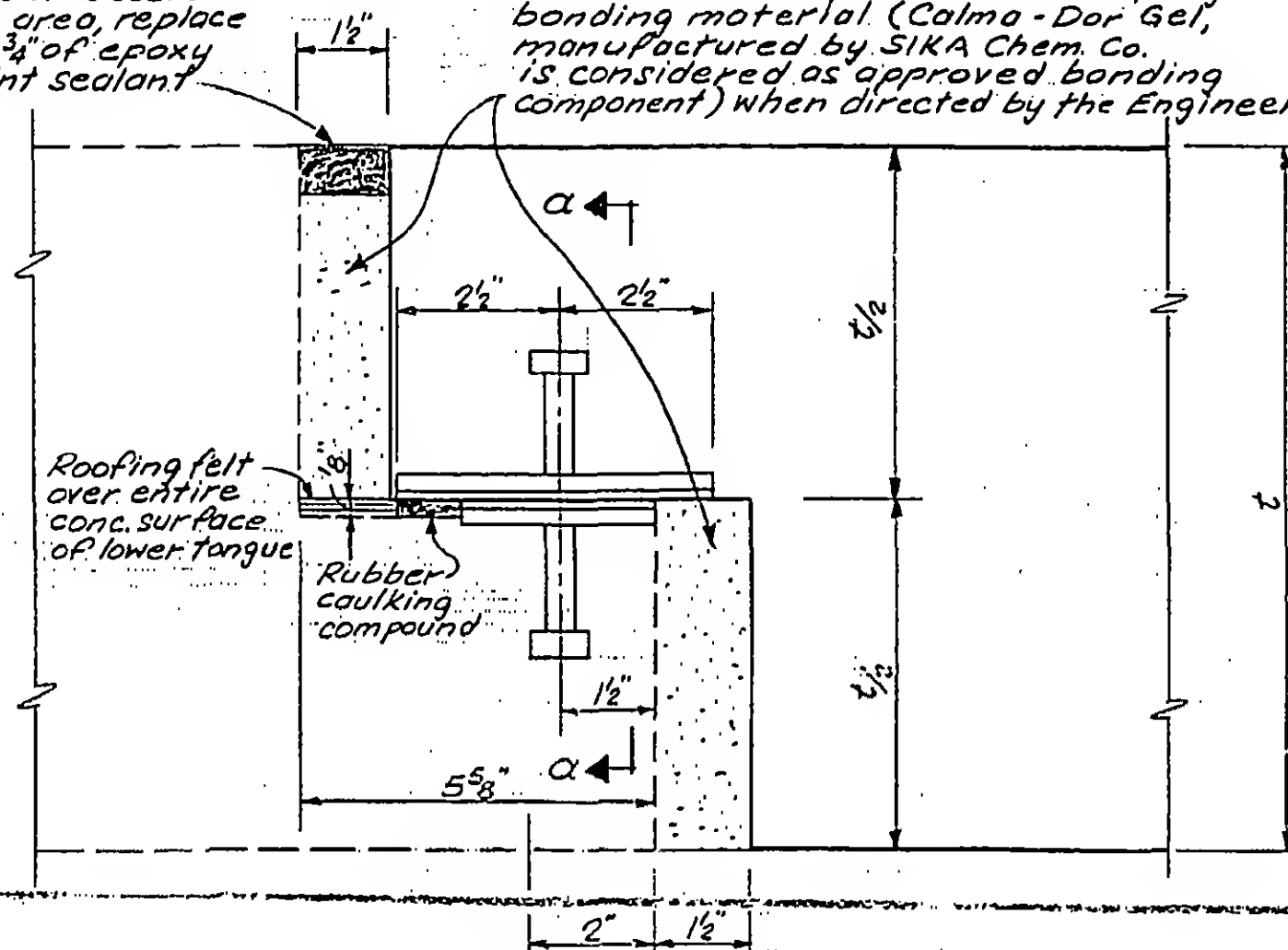
TITLE TEMPORARY EXPANSION JOINT DETAIL

DATE 5-21-69

REVISIONS

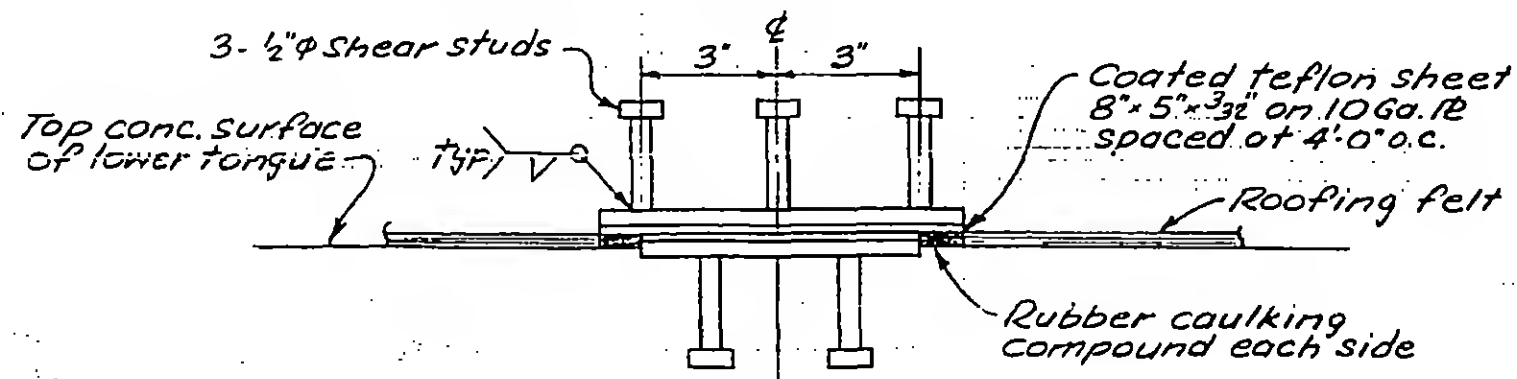
Where joint occurs in parking area, replace the top 3/4" of epoxy with joint sealant

Fill with two-component Gelled Epoxy bonding material (Calma-Dor Gel, manufactured by Sika Chem. Co. is considered as approved bonding component) when directed by the Engineer



Lower tongue & Reinf. in upper tongue similar (opp. hand)
see 8-JK5-14.5 to reinf. in lower tongue as shown on 8-JK5-14.5

Elevation of Upper Tongue (2nd Pour)

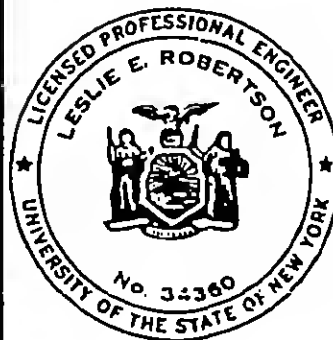


Section a-a

Notes:

1. See notes and added reinf. in slab on 8-JK5-14.1

8-JK5-14.G



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S.C.REVIEWED
E.L.

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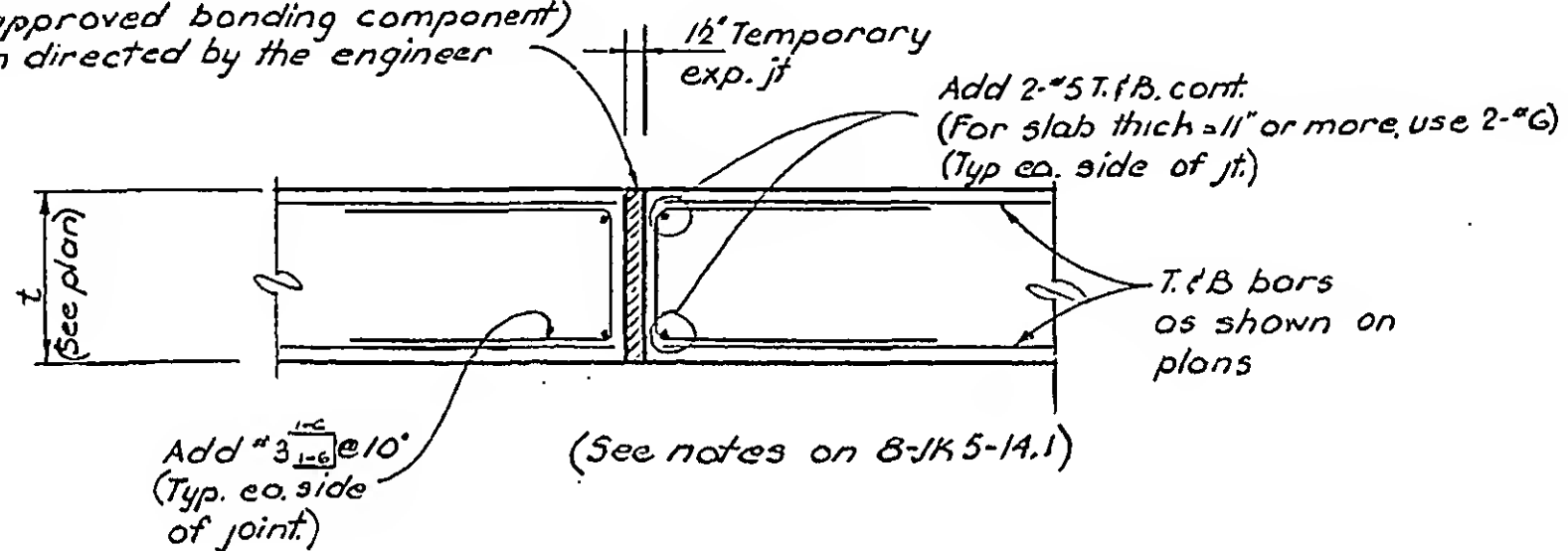
PROJECT THE WORLD TRADE CENTER

TITLE TEMPORARY EXPANSION JOINT DETAIL

DATE 1-16-70

REVISIONS

Fill with two component
gelled epoxy bonding material
(Colma-Dur Gel, manufactured
by Sika Chem. Co. is considered
as approved bonding component)
when directed by the engineer



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D. C. Huggins

REVIEWED

E. L.

8-JK 5-14.7

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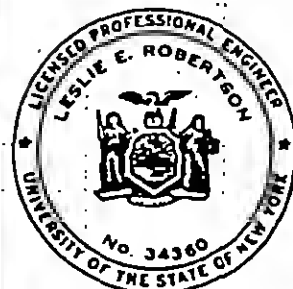
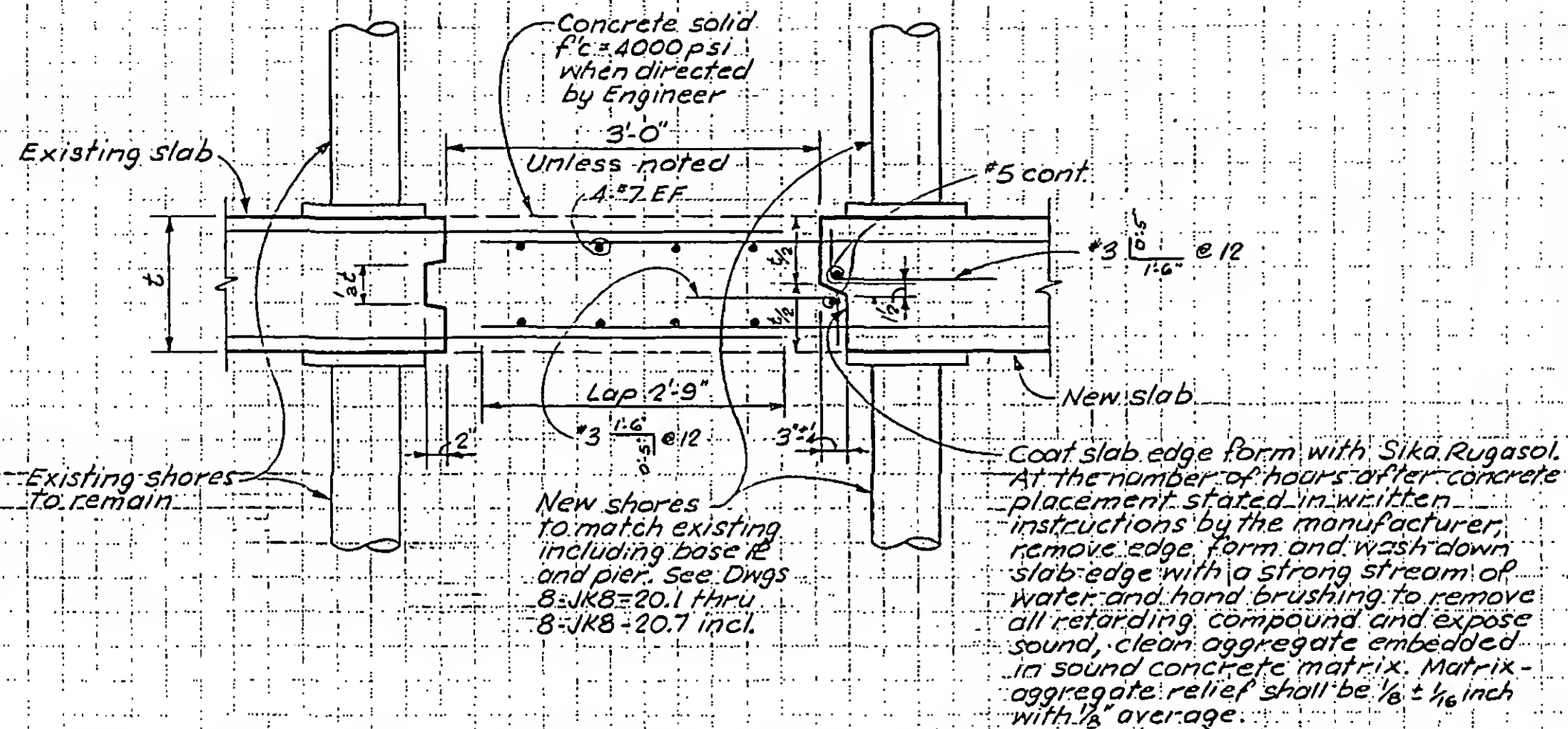
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PROJECT THE WORLD TRADE CENTER

TITLE TEMPORARY EXPANSION JOINT - TYPE BX

DATE 2-24-72

REVISIONS



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DRAWN

SC

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8-JK5-14.8

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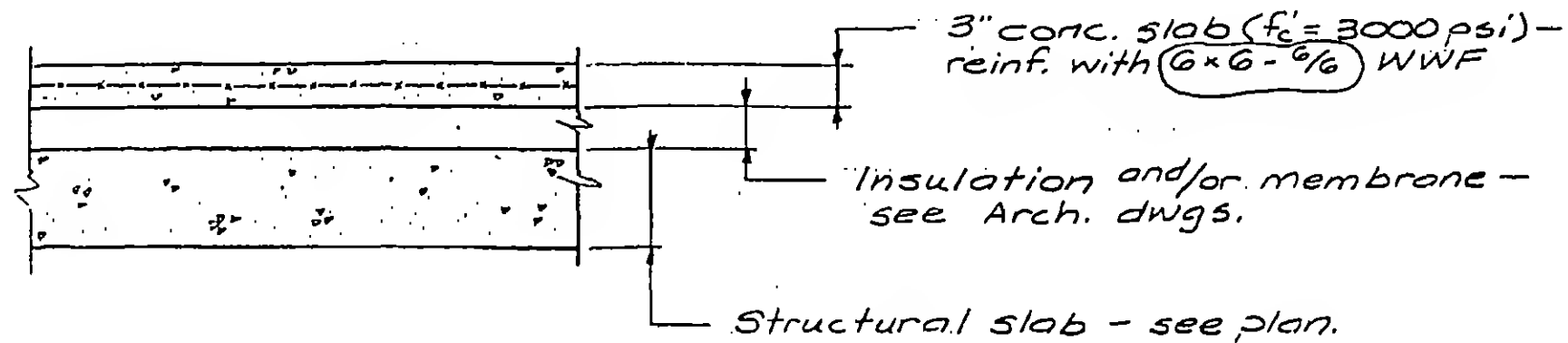
PROJECT THE WORLD TRADE CENTER

TITLE TYPICAL DETAIL OF 3" PROTECTION SLAB AT EL. 310

DATE 8-23-68

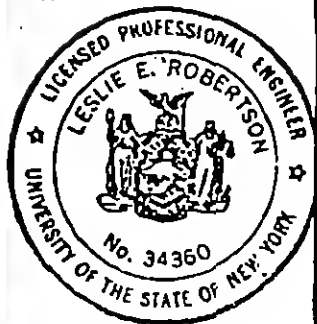
REVISIONS

10-21-68



Note:

For location of surface slab see
Spec: (pg. 102 A, fig. 1) (8-JK5-16).



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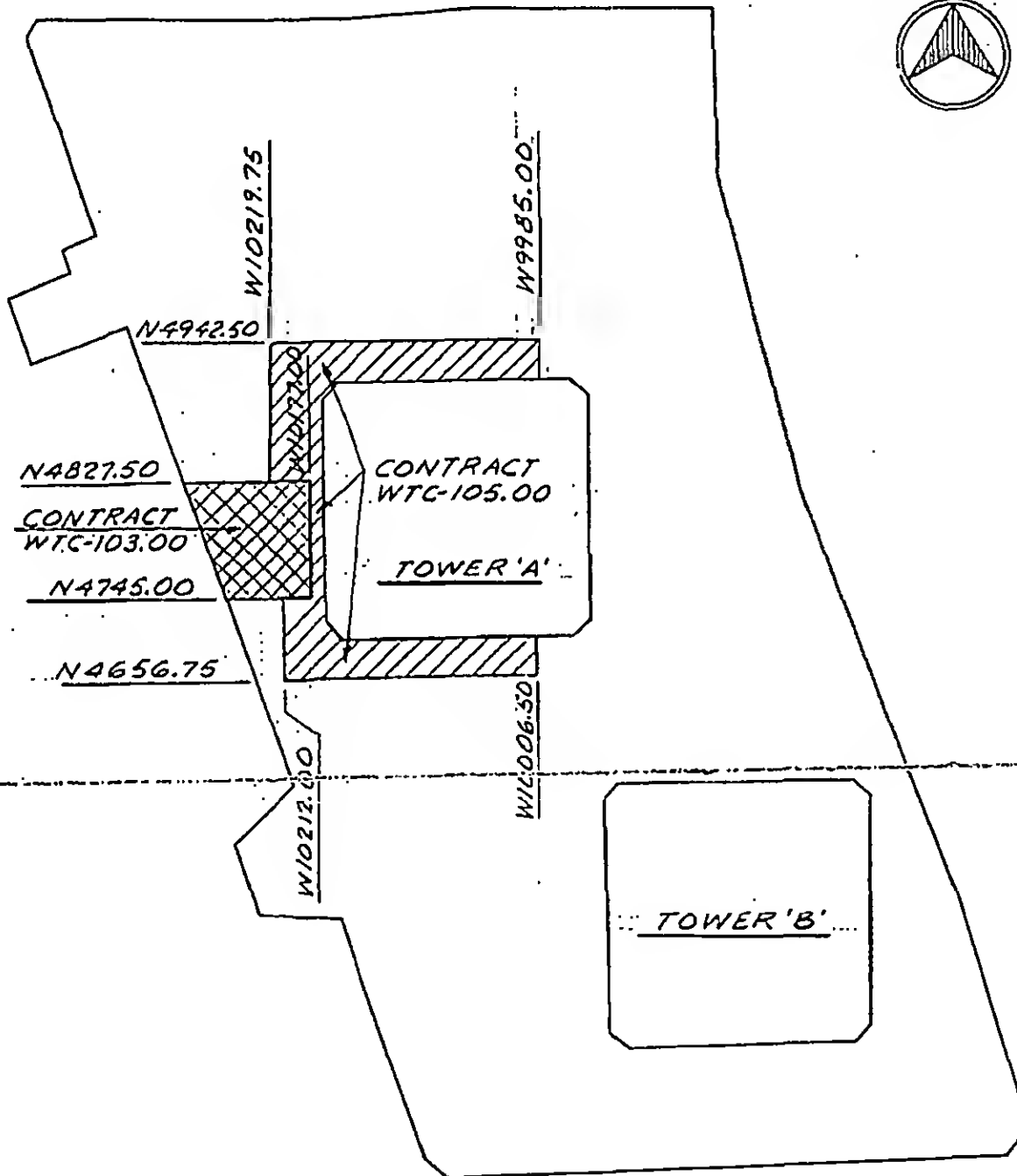
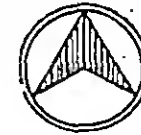
PROJECT THE WORLD TRADE CENTER

TITLE LOCATION OF WORK PLATFORMS AT EL. 310'

DATE 10-21-68

REVISIONS

NORTH



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8-JK5-16

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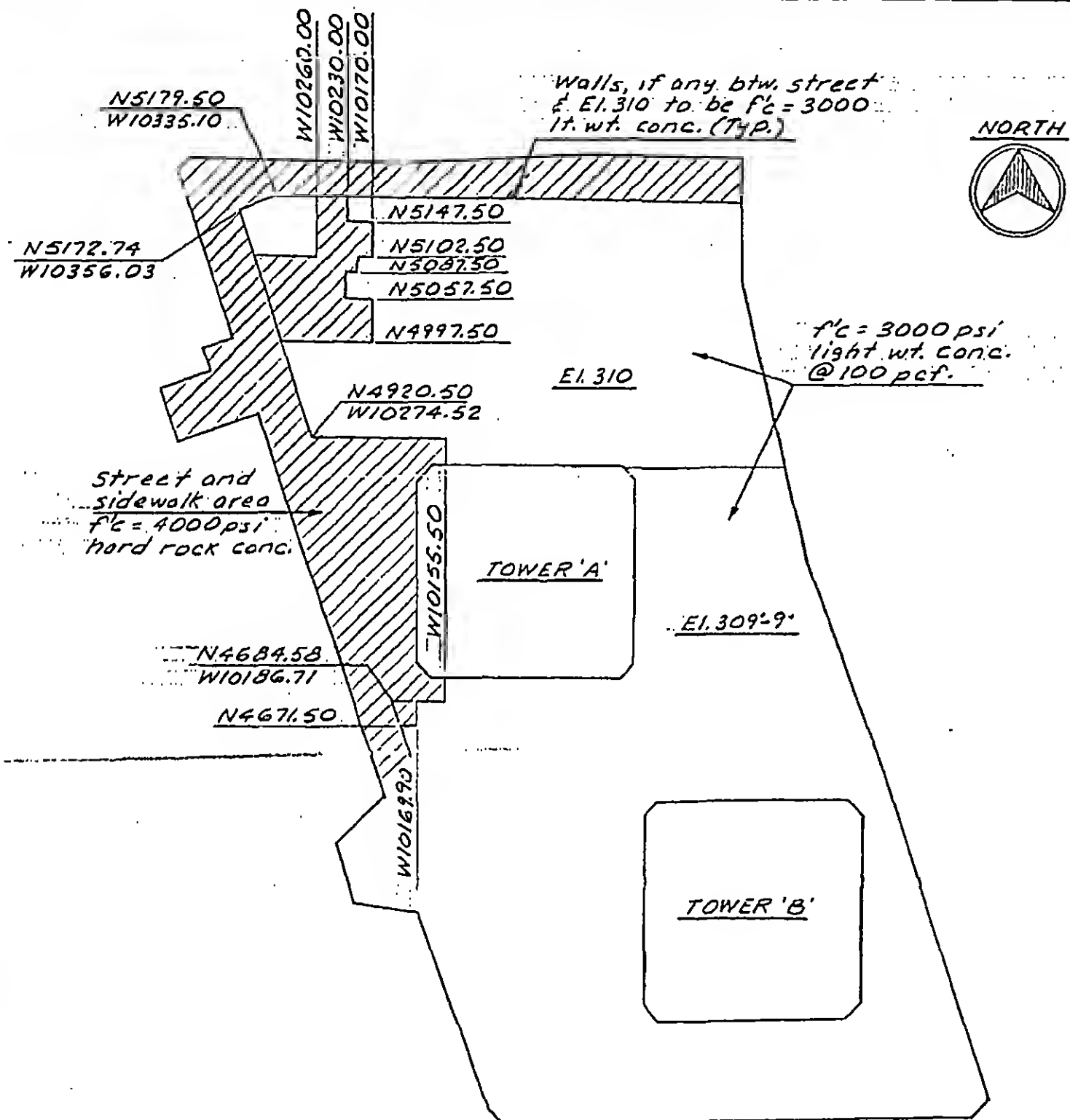
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PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE MIX DIVISION LINES - SLAB AT EL. 310

DATE 10-21-68

REVISIONS



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8-JK5-17

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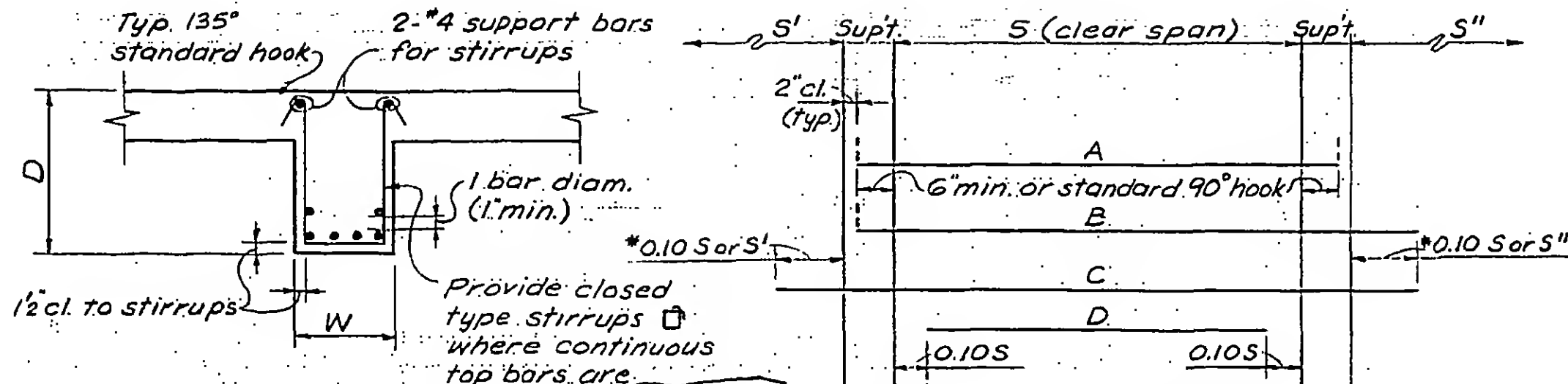
PROJECT THE WORLD TRADE CENTER

TITLE TYPICAL CONCRETE BEAM DETAILS

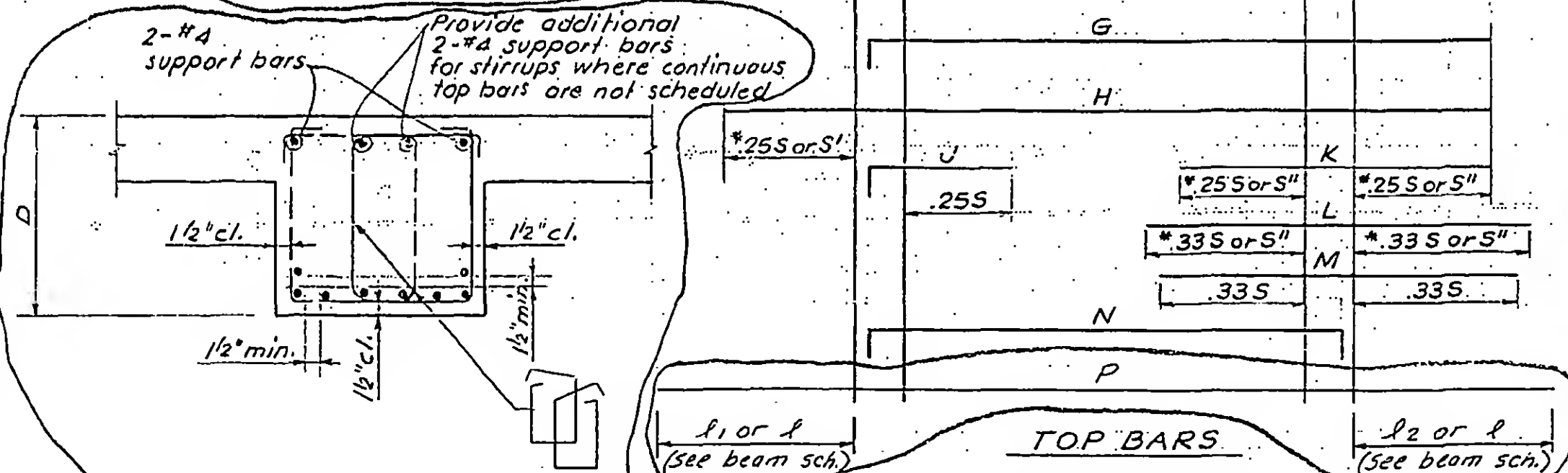
DATE 5-1-68

REVISIONS

12-18-68



STIRRUPS TYPE "A"



STIRRUPS TYPE "B"

TOP BARS

BEAM BAR TYPES

* Whichever span is larger

Notes:

1. First stirrup at distance ($d/2$) from support face, (d) being the first stirrup spacing given in schedule.
2. All beams to have reinf. conform to ASTM A-432 unless otherwise shown on sections or details.

Notes (cont.)

3. All stirrups shall conform to ASTM A-15 unless otherwise shown on schedules or details.



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S.C.

REVIEWED

J.M. & E.L.

8-JK5-21

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PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE BEAM SCHEDULE

DATE 7-9-68

NORTH PROJECTION

MK	CONCRETE SECTION		BOTTOM BARS			TOP BARS				STIRRUPS			REMARKS	
	W	D	No.	Size	Type	No.	Size	Type	Location	Size	Type	Spacing each end		
NB1	24	27	4	7	A	2	8	G		3	□	L106; bal. 012 R104; 009		
NB2	24	27	6	7	A	2	8	K G	Left	3		L103; 006; bal. 012 R106		
NB3	24	27	6	6	A	2	7	G		3		106; bal. 012		
NB4	24	27	6	6	A	2	7	K G	Left	3		106; bal. 012		
NB5	24	27	5	7	A	4	5	U L	Left Right	3		106; bal. 012		
NB6	24	27	4	7	A	5	8	2	Right	3		106; bal. 012		
NB7	20	27	5	7	A	4	6	J	Right	3		L104; 008; bal. 012 R106		
NB8	24	27	4	8	A	4	6	U L	Left Right	3		L106; bal. 012 R104; 408		
NB9	24	27	4	8	A	6	8	K	Right	3		104; 409; bal. 012		
NB10	19	27	4	8	A	2	4	8	K J	Left Right	3		L103; 006; bal. 012 R106	
NB11	24	27	3	8	A	4	6	U L	Left Right	3		L106; bal. 012 R104; 008		
NB12	24	27	4	8	A	6	8	L	Right	3		104; 408; bal. 012		
NB13	24	27	3	8	A	4	4	7	L U	Left Right	3		L104; 008; bal. 012 R106	
NB14	24	27	6	8	A	4	8	5	U L	Left Right	3		L106; bal. 012 R102; 1004; 006	
NB15	24	27	4	8	A	-	-	-		3		104; 409; bal. 012		
NB16	24	27	6	8	A	8	4	6	L U	Left Right	3		L103; 906; bal. 012 R106	
NB17	24	27	6	8	A	4	6	8	U L	Left Right	3		L106; bal. 012 R108; 1006	
NB18	24	27	2	8	A	4	6	J	Right	3		L103; 1006; bal. 012 R106		
NB19	24	27	6	7	A	5	9	6	U L	Exterior Support Interior Support	3		L103; bal. 012 R108; 1006	
NB20	24	27	7	7	A	4	5	J	Exterior Support	3		L102; 1003; 009; bal. 012 R106		
NB21	24	30	Top & Bottom Steel From NB22							3		104; bal. 09	Cont./lever	
NB22	24	30	4	8	C	5	7	H		3		L104; 1009; bal. 012 R106	Extend top & bot bars to south end of NB 21	
NB23	24	30	5	8	A	2	4	8	K U	Left Right	3		L106; bal. 012 R104; 1008	
NB24	24	30	4	8	A	4	4	9	G L	Right	3		L103; 2006; bal. 012 R106	
NB25	24	30	4	9	A	4	9	L	Right	3		103; bal. 06		
NB26	24	30	4	8	A	4	8	G		3		L106; bal. 012 R102; 1006		
NB27	24	30	4	11	A	5	11	G		3		L102; bal. 07 R102; 330 3/2		
NB28	24	30	4	11	A	5	11	H		3	□	L102; 2004 R104; bal. 07	See 8-JK8-22.17	
NB29	24	32.81	See Def. 1 on 8-JK8-22.17											
NB30	24	30	5	8	A	4	4	8	G K	Left	3	□	L102; 1004 R106; bal. 012	Extend top & bot bars to 134.1 (See 8-JK8-22.17)
NB30A	14	20	3	8	A	2	8	N		3	□	104; bal. 08	See 8-JK8-22 for det. of beam to slurry wall connection	
NB30B	14	20	3	8	A	2	8	G		3	□	104; bal. 08		

Note: See 8-JK5-21 for typical beam detail and bar types



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G.K.

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E.L.

8-JK5-22.1

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PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE BEAM SCHEDULE

DATE 7-9-68

REVISIONS

10-30-69 GEN. REV.

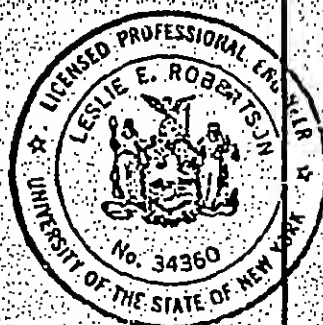
4-8-70

NORTH PROJECTION

MK	CONCRETE SECTION		BOTTOM BARS			TOP BARS				STIRRUPS				REMARKS	
	W	D	No	Size	Type	No	Size	Type	Location	Size	Type	Spacing each end			
NB31	18	24	2	2	7	6	B	3	7	G		3	L	106; bol. @ 12" Ext. Int.	*
NB32	18	24	2	6	C	2	7	H				3		106; bol. @ 12"	
NB33	18	24	3	5	C	2	3	5	7	K	K	L	R	106; bol. @ 12" L R	
NB34	18	24	3	5	C	2	5	K	R			3		106; bol. @ 12"	
NB35	18	24	2	5	B	2	6	G				3	L	106; bol. @ 12"	*
NB36	32	22	4	6	B	4	7	G				3		106; bol. @ 12"	*
NB37	32	22	7	7	C	3	5	7	7	K	K	L	R	104 1/2; 709; bol. @ 12"	
NB38	32	22	5	7	C	4	7	H				3		104 1/2; 709; bol. @ 12"	
NB39	32	22	5	7	C	4	3	7	7	K	K	L	R	104 1/2; 709; bol. @ 12"	
NB40	32	22	4	5	B	4	7	G				3		106; bol. @ 12"	*
NB41	32	22	5	6	B	3	8	G				3		106; bol. @ 12" Ext. Int.	*
NB42	32	22	5	6	C	2	5	8	8	K	K	L	R	104 1/2; 509; bol. @ 12"	
NB43	32	22	5	6	C	2	7	K	R			3		106; bol. @ 12"	
NB44	32	22	3	5	B	3	6	G				3		106; bol. @ 12"	*
NB45	24	66	8	8	A	8	2	10	8	G	J	L		103; bol. @ 6" Ext. Int.	* Beam NB45 spans pwt col. J82-1, J82-3
NB46	24	66	4	8	C	4	4	10	10	K	H	L		103; bol. @ 6"	Add 6 @ 12" hor. cont. ea. face of beams
NB47	24	66	4	8	B	4	8	G				3		106; bol. @ 12"	*
NB48	18	24	2	6	B	2	6	G				3	U	106; bol. @ 12"	*
NB49	18	24	3	6	C	2	3	6	8	K	K	L	R	106; bol. @ 12" L R	
NB50	18	24	2	6	C	1	6	K	R			3	U	106; bol. @ 12"	
NB51	18	24	3	6	B	2	6	G				3	U	106; bol. @ 12"	*
NB52	18	77 1/2													
NB53	14	77 1/2	See Detail on B-JK8-22.13												
NB54	14	77 1/2													
NB55	14	77 1/2													
NB54A	30	28	See sect. 5-5 on B-JK8-22												

Note:

1. See B-JK5-21 for typical beam detail and bar types
2. * See B-JK5-22 for detail of beam to slurry wall connection



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S.C.

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E.L.

B-JK5-22.2

PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE BEAM SCHEDULE

DATE 7-9-68

REVISIONS

3-7-69

7-16-69

NORTH PROJECTION

MK	CONCRETE SECTION		BOTTOM BARS			TOP BARS				STIRRUPS			REMARKS		
	W	D	No.	Size	Type	No.	Size	Type	Location	Size	Type	Spacing each end			
NB101	36	22	2	2	7.5	A	2	4	8	G	3	□	106, 8e12		
NB102	36	22	6	7	A	2	7	L	R	3	□	104 1/2, 6e9, 8e12			
NB103	36	22	4	7	A	4	8	H		3	□	104 1/2, 6e9, 8e12			
NB104	36	22	6	6	A	2	7	L	L	3	□	104 1/2, 6e9, 8e12			
NB105	36	22	4	6	A	2	4	7	L	G	3	□	106, 8e12		
NB110	30	22	4	7	B(R)	4	6	G		3	□	106, 8e12 104 1/2, 4e9	L R		
NB111	30	22	4	7	B(L)	2	8	H		3	□	104 1/2, 4e9, 8e12			
NB112	30	22	4	7	A	4	8	L	L	3	□	104 1/2, 4e9, 8e12			
NB113	30	22	4	7	A	4	8	G	R	3	□	106, 8e12			
NB114	20	36	5	5	9	9	A	5	2	8	8	G	L	Exterior support Interior support	Add 2 #5 (A) at mid-depth (one c.f.)
NB115	20	36	2	7	B(R)	3	8	H		3	□	106, 8e12			
NB116	20	36	3	7	B(L)	2	8	L	Exterior support	3	□	106, 8e12			
NB117	21	31	4	7	B	2	7	G		3	□	106, 8e12			
NB118	21	31	4	7	C	2	8	H	○	3	□	104 1/2, 6e9, 8e12 104 1/2, 6e9	L R		
NB119	21	31	4	7	A	2	7	H		3	□	106, 8e12			
NB120	21	31	4	7	A	2	7	G	○	3	□	104 1/2, 4e9, 8e12 106	L R		
NB121	21	24	4	7	A	4	8	G		3	□	106, 8e12			
NB122	21	24	4	7	A	4	9	L	R	3	□	104 1/2, 5e9, 8e12			
NB123	21	24	4	5	A	-	-	-	See NB124	3	□	104 1/2, 4e9, 8e12 106	L R		
NB124	21	24	4	5	A	4	5	G	R	3	□	106, 8e12			

Note:

See 8-JK5-21 for typical beam detail and bar types.



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8-JK5-22.3

PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE BEAM SCHEDULE

DATE 7-9-68

SOUTH PROJECTION

[illegible]

Note:

See 8-JKS-21 for typical beam detail and bar types.



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8-JK5-22.4

TITLE CONCRETE BEAM SCHEDULE

DATE 1-4-68

SOUTH PROJECTION

2-27-70 GEN.
REV.

Note:

See 8-JK5-21 for typical beam detail and bar types.



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8-JK5-22.5

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TITLE CONCRETE BEAM SCHEDULE

DATE 7-9-68

REVISIONS

4-16-69

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SOUTH PROJECTION

[illegible]

Note:

See 8-JK5-21 for typical beam detail and bar types.

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S.C.

REVIEWED
E.L.

8-JK5-22,6



PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE BEAM SCHEDULE

DATE 7-9-68

REVISIONS

1-23-70

SOUTH PROJECTION

[illegible]

Note:

See 8-JK5-21 for typical beam detail and bar types.

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S.C.

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8-JK5-22.7



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TITLE CONCRETE BEAM SCHEDULE

DATE 12-10-69

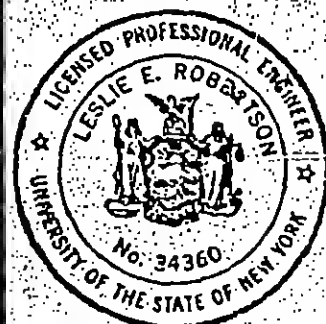
REVISIONS

[illegible]

See 8-JKS-21 for typical beam detail and bar types.

REVIEWED
E.L.

8-JK5-22:27



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TITLE CONCRETE BEAM SCHEDULE

DATE 12-18-68

REVISIONS

1-16-69

[illegible]

See 8-JK5-21 & 8-JK8-42 for typical beam detail and bar types.

8-JK5-22.30



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TITLE CONCRETE BEAM SCHEDULE

DATE 2-25-70

REVISIONS

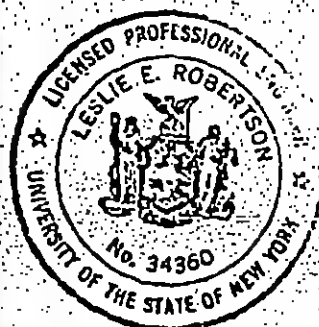
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See 8-JKS-21 for typical beam detail and bar types.

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S.C.

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E.L.

8-JK5-22.31



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PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE BEAM SCHEDULE

DATE 3-4-70

REVISIONS

[illegible]

Note:

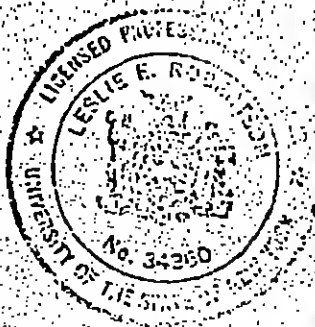
See 8-JKS-21 for typical beam detail and bar types.

DRAWN
V.H.A

REVIEWED

K. H. FEL

8-JK5-22.33



TITLE: CONCRETE BEAM SCHEDULE

DATE 12-18-68

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Note:

See 8-JKS-21 & 8-JKB-42 for typical beam detail and bar types.



DRAWN

S.C.

REVIEWED

Wm. E. L.

8-JK5-22.52

TITLE CONCRETE BEAM SCHEDULE

DATE 12-18-68

REVISIONS

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Note:

See 8-JK5-21 & 8-JK8-42 for typical beam detail and bar types.



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Reviewed by J.M. & E.L.

8-JK5-22.54

7-31-69

TITLE

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CONCRETE BEAM SCHEDULE

DATE

12-18-68

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Note:

See 8-JKS-21 & 8-JKB-42 for typical beam detail and bar types



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TITLE CONCRETE BEAM SCHEDULE

DATE 12-18-68

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7-3-69

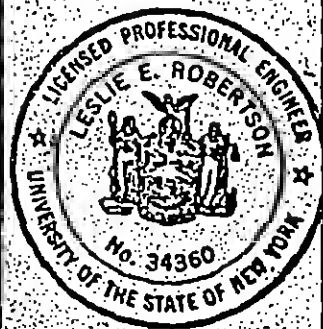
8-25-69

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Note:

See 8-JK5-21 for typical beam detail and bar types
* See 8-JK5-42 for additional beam details.

8-JK5-22.57



Civil & Structural Engineers

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CONCRETE BEAM SCHEDULE

DATE 8-25-69

REVISIONS

2-16-70

[illegible]

Note:

See 8-JKS-21 for typical beam detail and bar types.

* - see 8-JK8-42 for additional beam details.

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S.C.

REVIEWED

EL

8-JK5-22.58



TITLE CONCRETE BEAM SCHEDULE

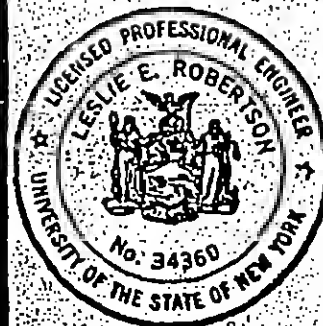
DATE 12-18-68

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See 8-JKS-21 for typical beam detail and bar types.



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J. M. E. E.

8-JK5-22.62

TITLE CONCRETE BEAM SCHEDULE

DATE 12-18-68

REVISIONS

12-12-69 GEN.
REV.

Note:

See 8-JK5-21 for typical beam detail and bar types.



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8-JK5-22.64

DATE 12-18-68

REVISIONS

[illegible]

Note:

See 8-JKS-21 & 8-JKB-42 for typical beam detail and bar types.

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S.C.B.

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J.M.E.E.L

8-JK5-22.65



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TITLE

CONCRETE BEAM SCHEDULE

DATE 12-18-68

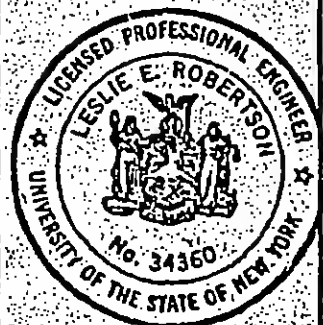
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5-76-69

(See 8-JK8-47.5)

Note:

See 8-JK5-21 & 8-JK8-42 for typical beam detail and bar types.



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8-JK5-22.67

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TITLE

CONCRETE BEAM SCHEDULE

DATE 12-18-68

REVISIONS

8-29-69

12-12-69

Note:

See 8-JK5-21 for typical beam detail and bar types.

* See 8-JK8-42 for additional beam details.

8-JK5-22.70



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TITLE

CONCRETE BEAM SCHEDULE

DATE 8-29-69

REVISIONS

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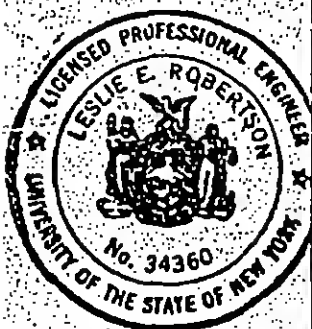
[illegible]

Note:

See 8-JK5-21 for typical beam detail and bar types.
* See 8-JK8-42 for additional beam details.

* See 8-JK8-42 for additional beam details

8-JK5-22.71



PROJECT THE WORLD TRADE CENTER

TITLE: CONCRETE BEAM SCHEDULE

DATE 3-16-70

REVISIONS

[illegible]

Note:

See 8-JKS-21 for typical beam detail and bar types.

See 8-JK8-42 for additional beam details.

8-JK5-22.73



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E. C. 1/2

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TITLE

CONCRETE BEAM SCHEDULE

DATE 12-18-68

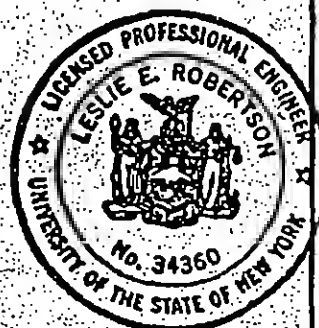
REVISIONS

[illegible]

Note:

See 8-JK5-21 & 8-JK8-42 for typical beam detail and bar types.

8-JK5-2279



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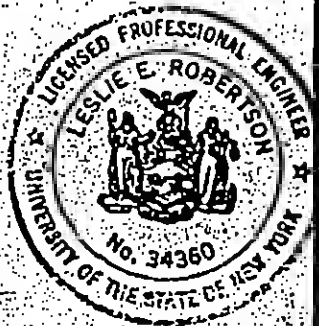
DATE: 12-18-68

REVISIONS

[illegible]

Note:

See 8-JK5-21 & 8-JK8-42 for typical beam detail and bar types.



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8-JK5-22.83

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CONCRETE BEAM SCHEDULE

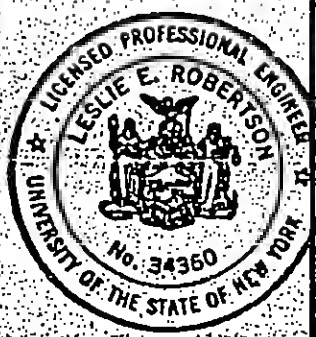
DATE 12-18-68

REVISIONS

9-3-69

11-7-69

See detail on
8-JKB-46.10



Note:

See 8-JK5-21 for typical beam detail and bar types.
* See 8-JK8-42 for additional beam details.

8-JK5-22.85

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TITLE CONCRETE BEAM SCHEDULE

DATE 3-19-70

[illegible]

- 1- See 8-JK5-21 for typical beam detail and bar types.
- 2- See 8-JK8-42 for additional beam details.

S.C.

III

8-JK5-22.89



WORTHINGTON, SKILLING, HELLE & JACKSON

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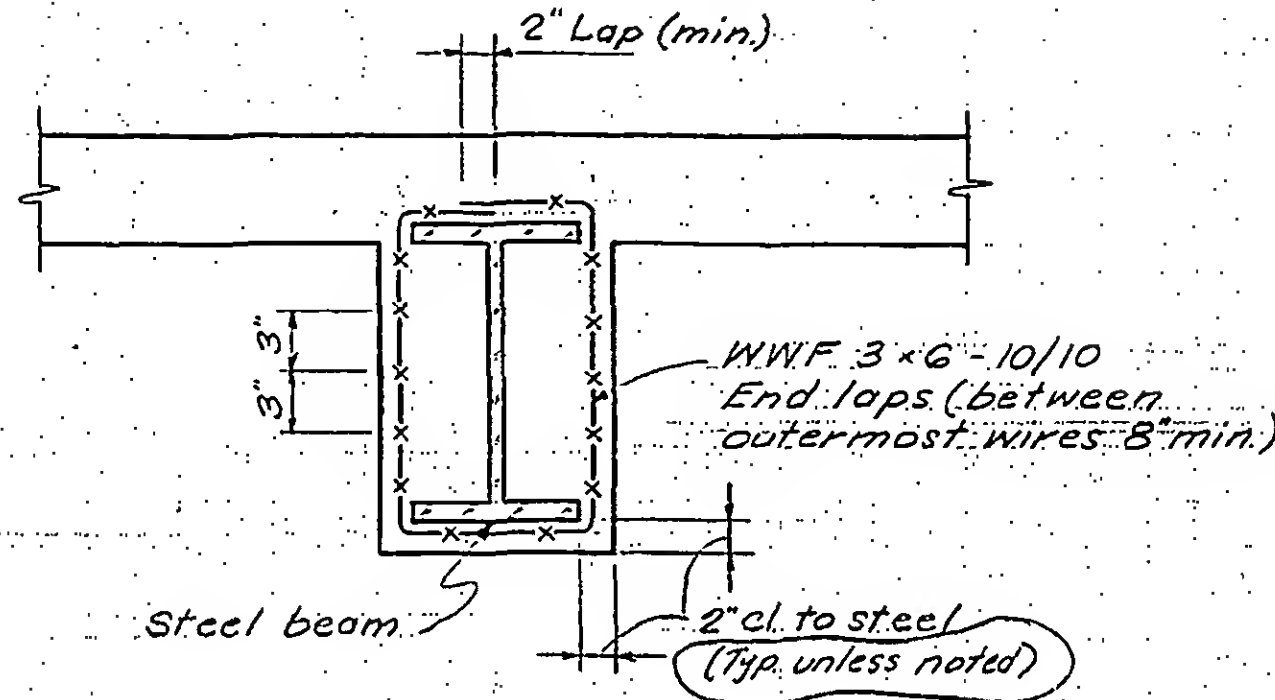
PROJECT THE WORLD TRADE CENTER

TITLE CONCRETE FIREPROOFING DETAIL

DATE 8-23-68

REVISIONS

12-18-68



Note: Upset beam similar unless noted.

NOTES:

1. This detail applies to all beams with the symbol (CFP) as shown on plans.
2. See also Archt'l. Dwgs. and details for other beams requiring concrete encasement.



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8-JK5-23

Arch-1001-1577

